# WESTERN INDUSTRY

• The West is beginning to take advantage of its chemical possibilities. Scene in a Rocky Mountain plant. For details see page 5.

IN THIS ISSUE: Dawn of United Effort to Build Ocean Commerce for the West; How to Get By on Less Power and Light This Year; New Bark Products for Wood Wastes; Correct Use of Standard Data; New Handling Features Speed Coal to Railroad; Production Techniques

Five Cents VOLUME XIII NUMBER 4 April, 1948

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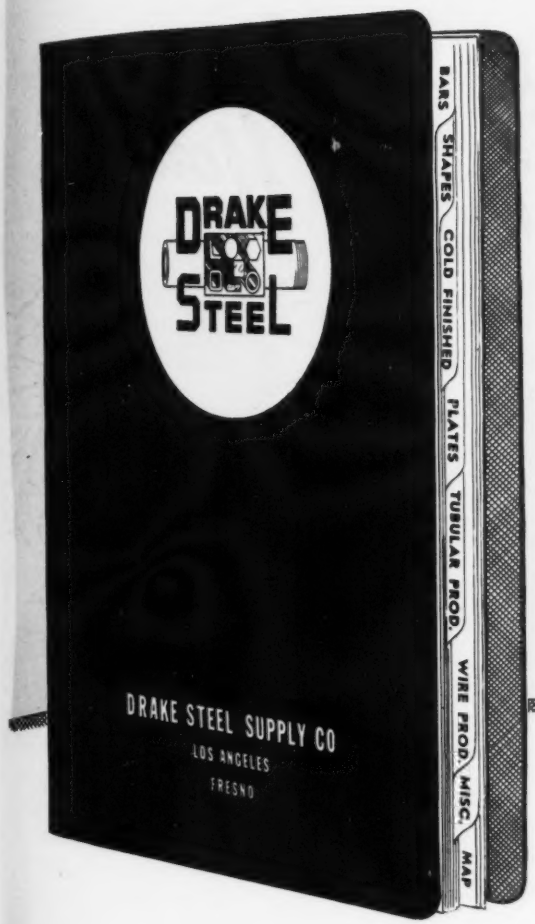
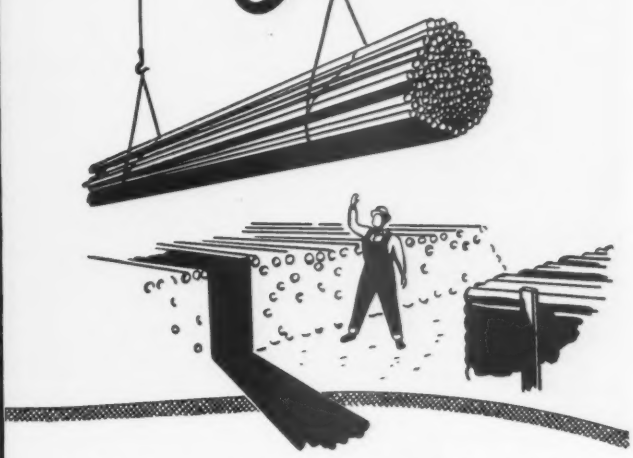
# Drake Steel Catalog



Drake's new catalog furnishes all vital information for ordering steel products. "Quick finder" index and simplified pages clearly show sizes, weights and necessary dimensions of all types of steel, tubular and wire products . . . . also details on special cutting services. A map describing Drake's free delivery area is included. This new catalog will save you time and money in filling your steel needs...and it's FREE. Just mail the coupon below or telephone your nearest Drake office.

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C. A. ROBINS
GOVERNOR

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* One of a series of advertisements based on industrial opportunities in the states served by Union Pacific Railroad.

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*This Month in*

# WESTERN INDUSTRY

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**Front Cover**

Dave Cox, operator at Colorado Fuel & Iron's chemical plant in the Denver arsenal, opens a valve to charge two 4,400-gallon chlorination reactors. Chlorine is introduced into benzol charge, which is circulated at the rate of 1,200 gallons per minute through water-cooled exchangers, until desired gravity is reached.

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As each condenser, heat exchanger or other piece of equipment using tubes and plates presents an individual combination of conditions, no blanket recommendations are possible. Among the factors to be considered are: chemical and impingement attack, velocities, pressures, temperatures, air entrainment, suspended solids. Should short tube life or other circumstances lead you to question your present practices, the Revere Technical Advisory Service will gladly cooperate with you in making thorough field and laboratory studies, to assist you to determine the most serviceable and economical alloys.

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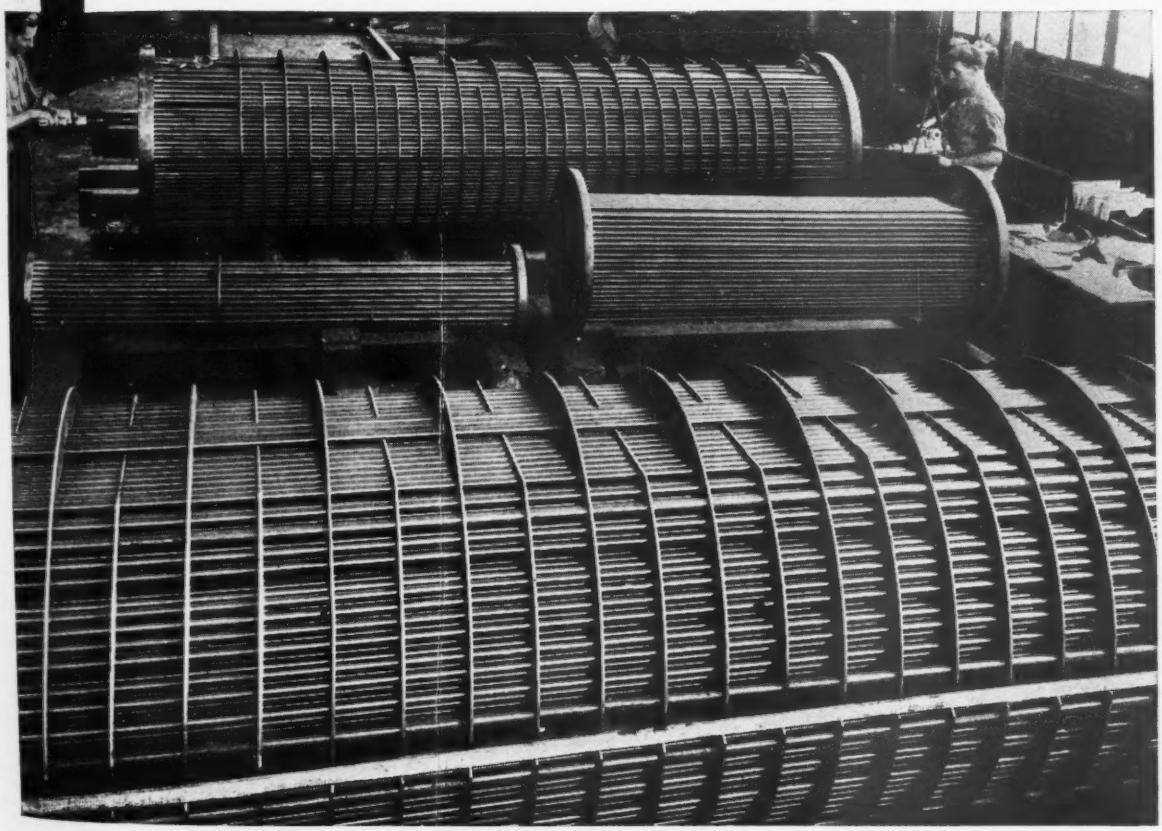

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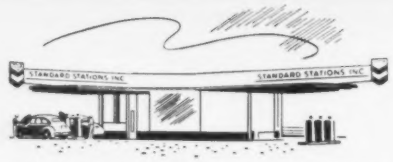


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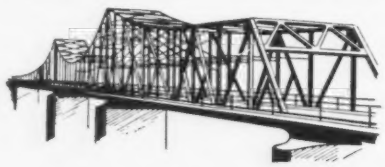
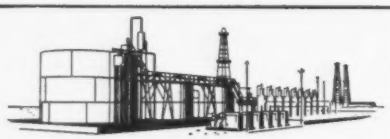


**STEEL BRIDGES AND BUILDINGS**



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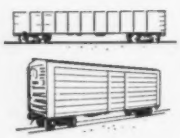

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**INDEPENDENT IRON WORKS INC.**
EIGHTH AND PINE STREETS — OAKLAND 7, CALIFORNIA

## to *speed* wire and cable *delivery* in the west

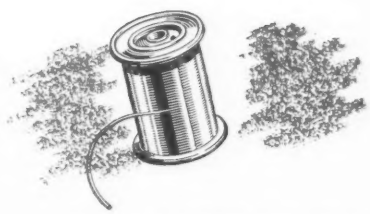
The Oakland Cable Plant of General Electric has been expanded. Formex magnet wire is now being manufactured; capacity for Flamenol cable has been increased. New machines are now operating. Inventories are being built so that many standard sizes of wire and cable can be bought from stock.

To western industry, this means faster delivery. It means even more personalized service. It means assurance of the same high quality for which all G-E wire and cable products are justly famous.

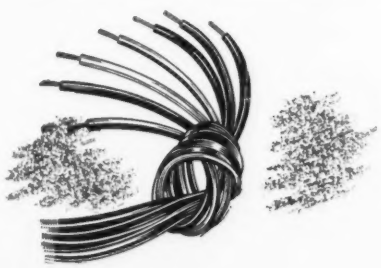
* * *

The new addition to the Oakland Cable Plant is only one part of General Electric's west-coast expansion program—a program which means that the total west-coast employment of General Electric will soon approach 12,000 persons—in eight different plants.

If you need good cable and fast western service, just get in touch with your nearest G-E office. Apparatus Dept., General Electric Company, Schenectady, N. Y.



FORMEX Magnet Wire—The Oakland Cable Plant is now manufacturing Formex Magnet Wire. Its extremely flexible, abrasion-resisting insulation makes it easy to wind and easy to handle. Formex saves space, simplifies varnish treatment, has more feet per pound than ordinary magnet wires.



FLAMENOL — Manufacturing capacity of Flamenol cable at Oakland has been increased approximately 50 per cent. This long-lived insulation simplifies wiring jobs, saves space. It offers superior physical properties and high dielectric strength to countless low-voltage applications.

**GENERAL ELECTRIC**

503-29

With factories in Anaheim, Los Angeles, Oakland, Ontario, San Francisco, San Jose, Seattle, and Richland, and Sales Offices in twenty Western cities.

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- **Valve parts**

**BETHLEHEM PACIFIC**

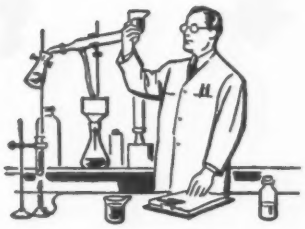
## Shell Research developed this

# SHELL TURBO OIL

## to help extend the running time of turbines

### *Weak oils can cut down turbine efficiency*

Likely you've seen what happens—how ordinary oils oxidize, break down into sludge, "gum up the works"—even cause rust. Result: shorter running time and higher operating costs.



### *Shell's answer: a doubly fortified lubricant*

Shell Research specifically developed an oil for turbine use—Shell Turbo Oil. To build this oil, Shell selects only crude stocks naturally high in oxidation stability—sludge resistance. Then, with Shell-developed additives, Shell Turbo Oil is doubly fortified. Once to build up its naturally high resistance to oxidation. Again to assure exceptional rust-preventing quality.

### *What you as a Shell Turbo user can expect*

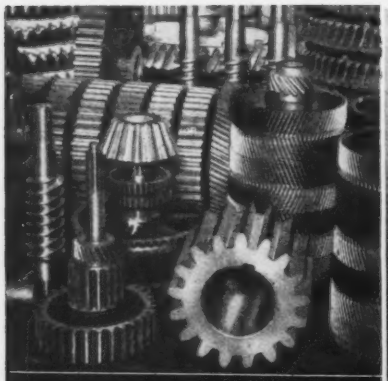
Little or no trace of sludge, no rust, no breakdown in the oil. In fact, Shell Turbo Oil has been delivering exactly that kind of lubrication performance in all types of installations—and always to the end of extending the running time of turbines.

SHELL

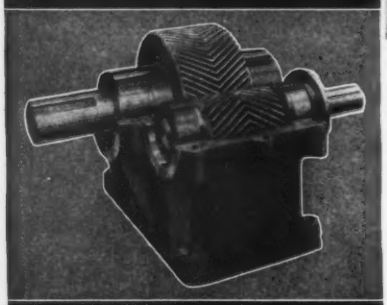
**ARE YOU ABSOLUTELY SURE YOU ARE GETTING ALL THAT'S NEW IN LUBRICATION?**

Your Shell Lubrication Engineer can make a complete study and analysis of your plant and machines... give you engineering counsel, advice on new lubricants and their application... help you set up schedules and controls for each and every machine. For that kind of service, call in your Shell Lubrication Engineer.

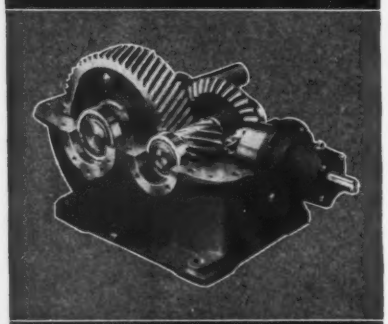
# READY TO SOLVE YOUR PROBLEMS IN MACHINE DESIGN



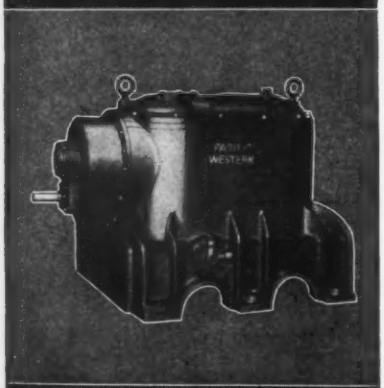
GEARS for every need



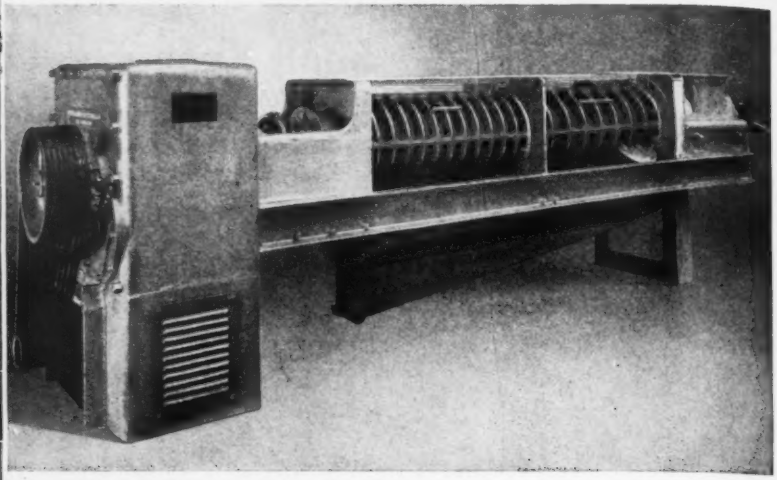
Single reduction speed reducer



Right Angle speed reducer



Vertical Speed Reducer



*The photograph above shows one of several sizes of fish presses made by the California Press Manufacturing Company which for 52 years have incorporated PACIFIC-WESTERN gears in their basic design.*

For over a half century Western Industry has relied on PACIFIC-WESTERN plants and personnel to provide sound, economical solutions to their problems of mechanical power transmission. Our staff of specialists is familiar with the problems of Your Industry and is available to help you develop your ideas.

GEARS OF ALL TYPES...Our gearmaking facilities are the most complete on the west coast. We design and cut gears of all types and sizes and build special gear boxes.

OUR COMPLETE LINE of power transmission equipment includes speed reducers, high speed units, Pacific-General Electric Motorized Speed Reducers, Reeves Variable Speed Equipment, couplings and Cone gears and reducers.

**NOW . . . Fast Delivery on many popular types and sizes of speed reducers from stock.**

*Write, wire or phone nearest plant or office for complete information.*

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SALES REPRESENTATIVES: Portland . . . Salt Lake City

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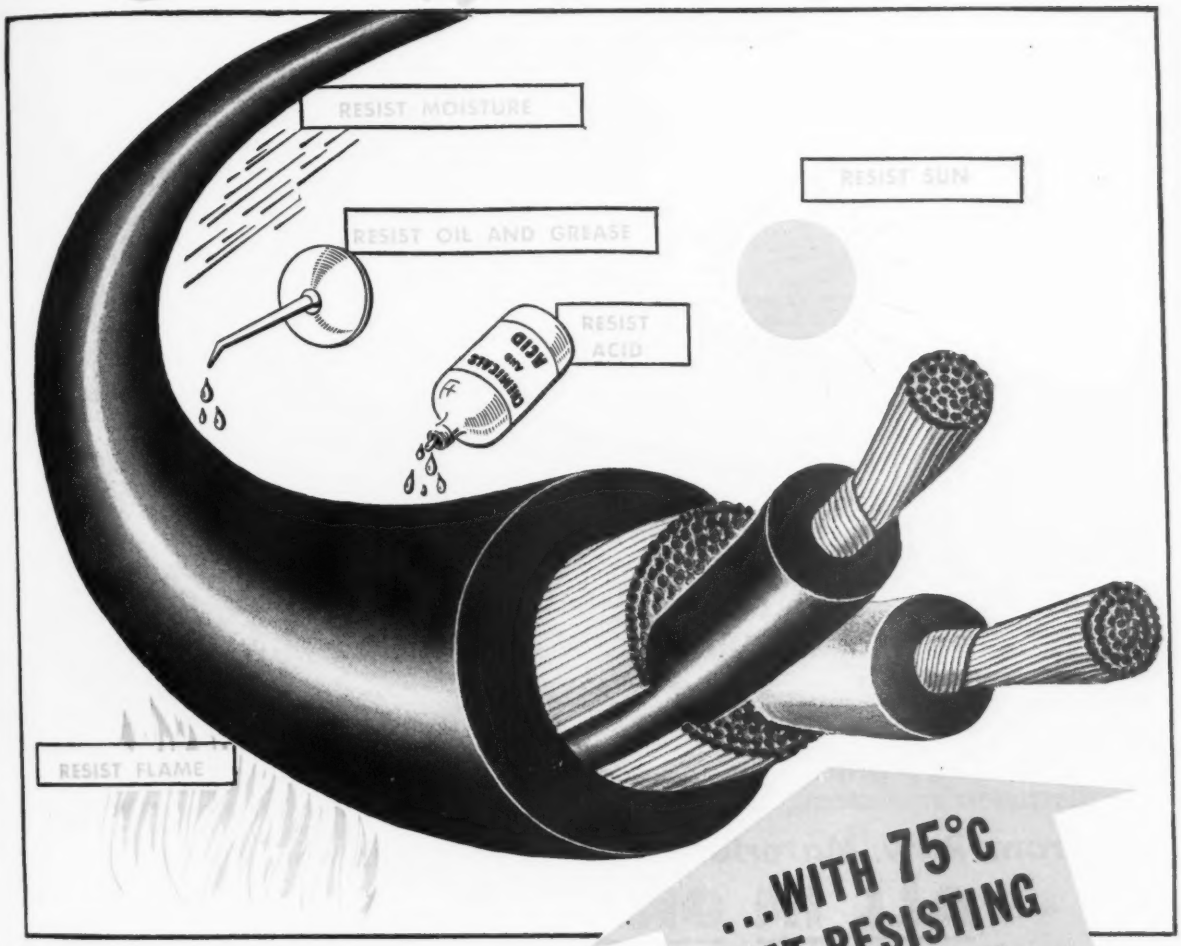
**PACIFIC-WESTERN**

**GEAR PRODUCTS**

# Neoprene Jackets for Securityflex Cords...




## ...WITH 75°C HEAT-RESISTING INSULATION

Whether you require heavy duty cords of one to eight conductors, or lightweight cords for small tools and lamps, Neoprene-jacketed Anaconda Securityflex* assures long rugged service.

The tough, dense Neoprene jackets for Securityflex cords resist flame, heat, sunlight, aging and ozone . . . oils, solvents, chemicals and acids. Their high tensile strength, resilience and toughness protect cords against permanent distortion, cutting, abrasion and crushing.

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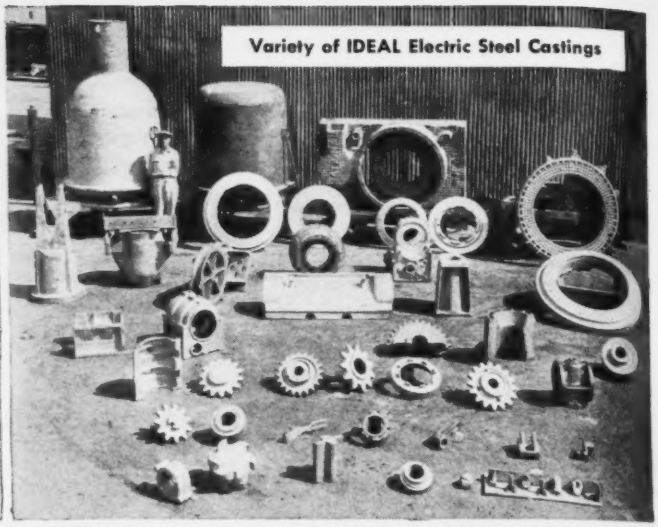
ANACONDA from mine to consumer

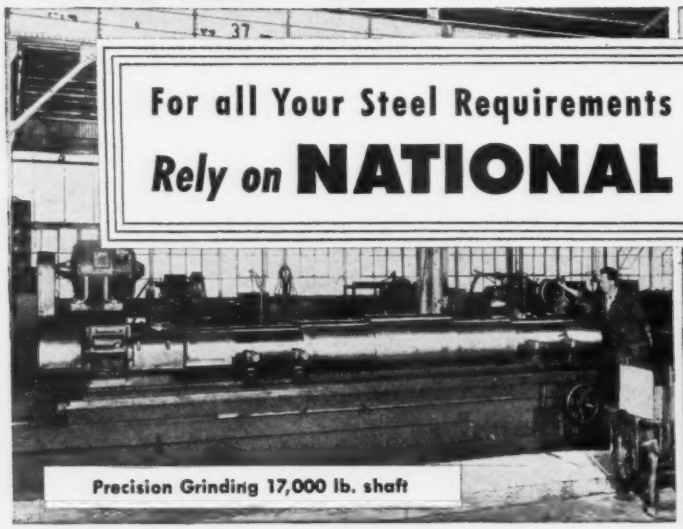
ANACONDA Securityflex CORD

*Reg. U. S. Pat. Off.

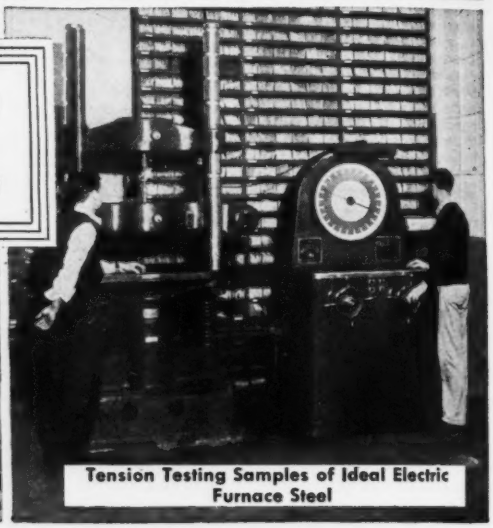
79" O. D. Electric Steel Ring Forging



Variety of IDEAL Electric Steel Castings



Precision Grinding 17,000 lb. shaft



Tension Testing Samples of Ideal Electric Furnace Steel

**For all Your Steel Requirements**

***Rely on* NATIONAL**

***From Raw Material to Precision Finished Product***

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The largest completely integrated machinery manufacturing facility in the West offers assurance of prompt efficient service and top quality for your products.

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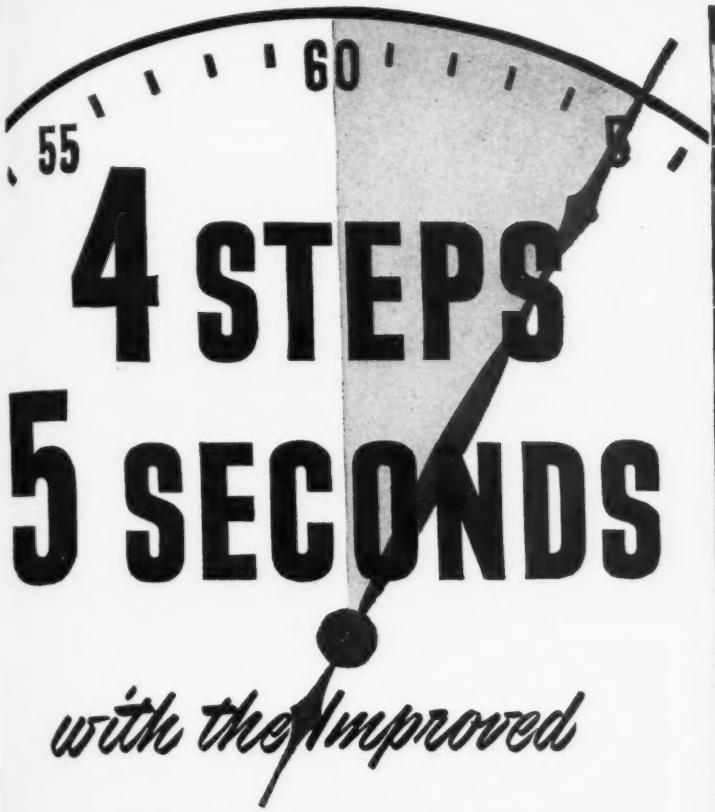


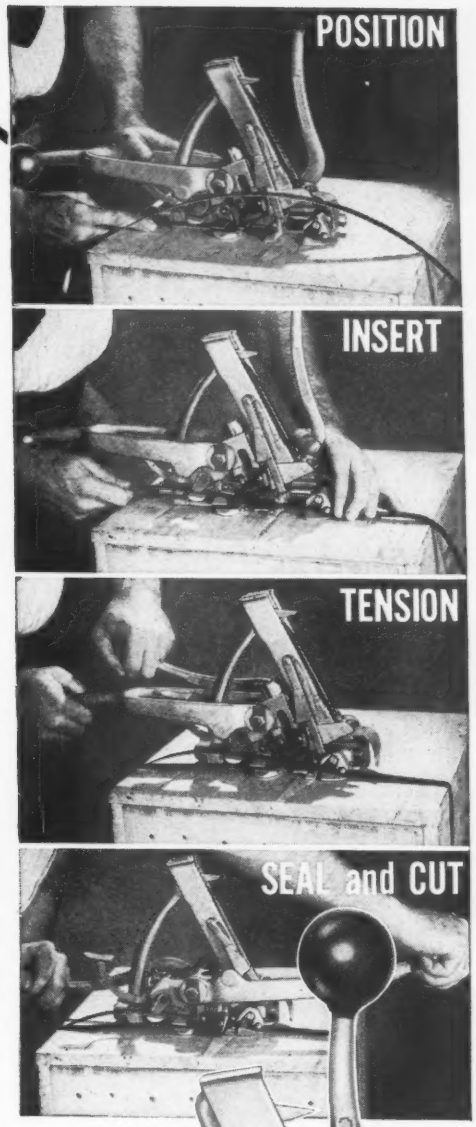

# 4 STEPS 5 SECONDS

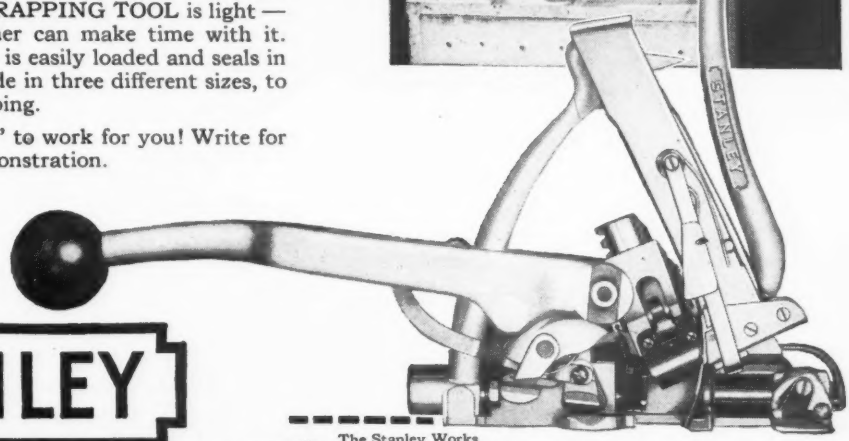
*with the Improved*

## STANLEY ACE STRAPPING TOOL

*Here's how* to put strapping on a production basis. This improved STANLEY ACE STRAPPING TOOL is light — fast — simple — even a beginner can make time with it. Magazine holds 75–100 seals — is easily loaded and seals in any position. The "Ace" is made in three different sizes, to handle 3/8", 1/2" and 5/8" strapping.

Decide now to put the "Ace" to work for you! Write for full information or ask for demonstration.




STANLEY

Reg. U.S. Pat. Off.

*HARDWARE · HAND TOOLS · ELECTRIC TOOLS*

**SEND FOR BOOKLET ➡**

The Stanley Works
*Steel Strapping Division*
234 Lake Street, New Britain, Conn.

Gentlemen: Please send me free folder on the Improved ACE Strapping Tool.

Name.....
Title.....
Company.....
Address.....
City..... State.....

# that means Better Service and Definite Savings for You!

## JOY AXIVANE FAN APPLICATIONS

Apartment Houses
Aircraft
Air Conditioning Systems
Auditorium Ventilation
Automotive

Boiler Draft

Caves
Chemical Plants
Cleaners
Cooling Towers

Dehumidifiers
Diesel Engine Cooling
Dryers
Dust Collectors

Evaporative Condensers

Fan Heating Systems
Filtering Systems

Generator Cooling
Grain Drying

Hay Driers
Hair Dryers

Hospitals
Hotels
Humidifiers

Kitchens

Laundries

Mines

Oil Burners

Pharmaceutical Mfg.
Pneumatic Conveyors

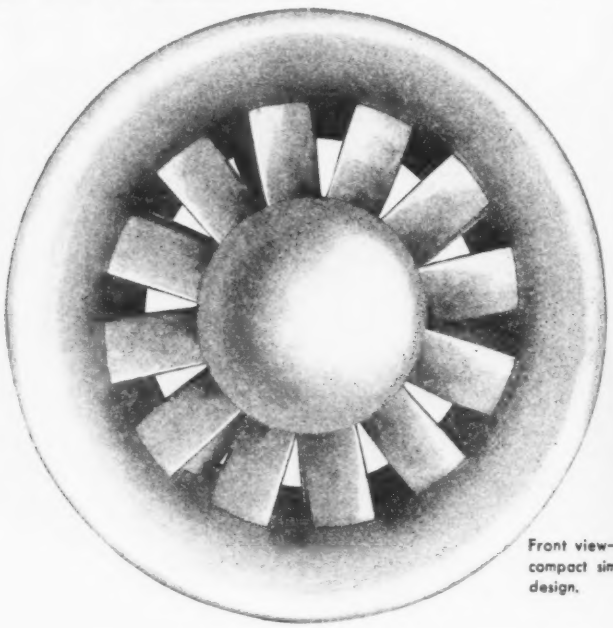
Railroad Cars
Refineries
Residence Heating

Schools
Ships
Stokers

Textile Mfg.
Tunnels

Unit Coolers
Unit Heaters
Vacuum Cleaners

Wind Tunnels



Front view—showing compact simplicity of design.

**Write for our new complete Bulletin describing the Joy Axivane Fan and the "Series 1000" stock line. Now ready.**

**"Series 1000" is a line of stock fans with an unequalled range in size and volume.**

**This means quick delivery, and low maintenance, together with all the advantages of this remarkable Troller designed fan, such as—compactness, self-enclosed motor, on-the-job adjustable blades, less weight, less cost to install—a truly outstanding fan engineering achievement.**

WSD 1-46

# JOY MANUFACTURING COMPANY

GENERAL OFFICES: HENRY W. OLIVER BUILDING · PITTSBURGH 22, PA.

## How to get prompt delivery on sheet metal products:

# YOU ... FURNISH THE STEEL

If you can supply us with 12 to 24 gauge sheet steel, we will buy the steel from you and ship pound for pound . . .

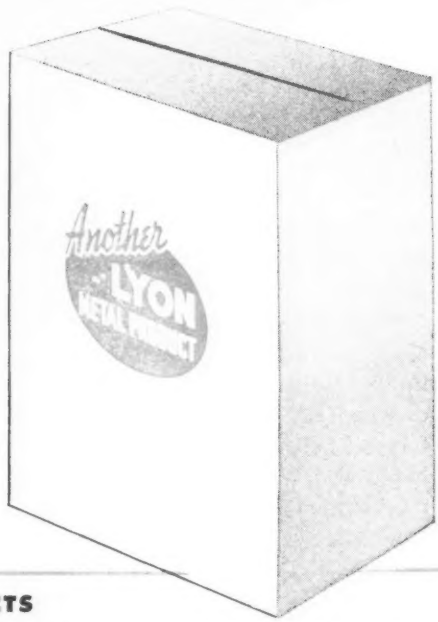
*EITHER*

. . . LYON standard products—any selection of items in production (see partial list below)—at regular published prices . . .

*OR*

. . . your own assemblies, subassemblies, parts, etc., for your product—to your specifications—in an even wider range of gauges—8 to 30.

# LYON ... WILL MAKE THE PRODUCT




**LYON METAL PRODUCTS, INCORPORATED**

General Offices, 440 Monroe Ave., Aurora, Ill.
Branches and Dealers in All Principal Cities

**A PARTIAL LIST OF LYON PRODUCTS**

- Shelving
- Lockers
- Wood Working Benches
- Economy Locker Racks
- Kitchen Cabinets
- Display Equipment
- Hanging Cabinets
- Welding Benches
- Filing Cabinets
- Cabinet Benches
- Folding Chairs
- Drawing Tables
- Storage Cabinets
- Bench Drawers
- Work Benches
- Drawer Units
- Conveyors
- Shop Boxes
- Bar Racks
- Bin Units
- Tool Stands
- Service Carts
- Hopper Bins
- Parts Cases
- Flat Drawer Files
- Tool Trays
- Desks
- Stools
- Tool Boxes
- Sorting Files
- Ironing Tables

*An Engineering Achievement...*

# that means Better Service and Definite Savings for You!

## JOY AXIVANE FAN APPLICATIONS

Apartment Houses
Aircraft
Air Conditioning Systems
Auditorium Ventilation
Automotive

Boiler Draft

Caves
Chemical Plants
Cleaners
Cooling Towers

Dehumidifiers
Diesel Engine Cooling
Dryers
Dust Collectors

Evaporative Condensers

Fan Heating Systems
Filtering Systems

Generator Cooling
Grain Drying

Hay Driers
Hair Dryers
Hospitals
Hotels
Humidifiers

Kitchens

Laundries

Mines

Oil Burners

Pharmaceutical Mfg.
Pneumatic Conveyors

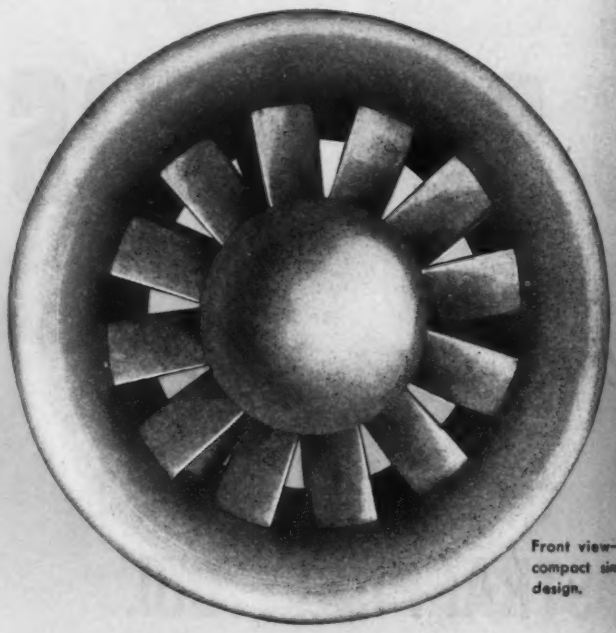
Railroad Cars
Refineries
Residence Heating

Schools
Ships
Stokers

Textile Mfg.
Tunnels

Unit Coolers
Unit Heaters
Vacuum Cleaners

Wind Tunnels



Front view—showing compact simplicity of design.

## "SERIES 1000" JOY AXIVANE FANS

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*Consult a Joy Engineer*

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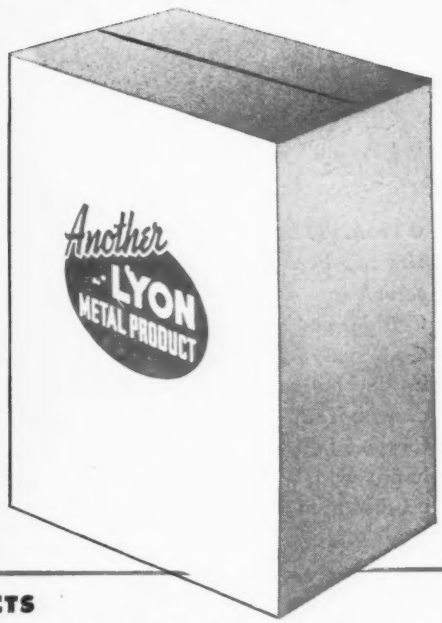


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- Service Carts
- Hopper Bins
- Parts Cases
- Flat Drawer Files
- Tool Trays
- Desks
- Stools
- Tool Boxes
- Sorting Files
- Ironing Tables

# CLEVELAND *Top Quality* FASTENERS

## bring you the advantages of *specialization*

● Hexagon, Flat, Fillister and Socket Head Cap Screws; Square Head Set Screws; standard and special Milled Studs. Materials used: carbon steels, alloys, non-ferrous.

● From the beginning of our operations 30 years ago our aim has been directed toward making the *best fasteners possible* in a restricted list of types. All our manufacturing facilities and skill today are concentrated on Top Quality *Cap Screws, Set Screws* and *Milled Studs*—with some capacity devoted to parts of special design required by our customers. This specialization is your assurance that Cleveland Fasteners meet the highest standards specified in this field. Write for folder explaining double extrusion process used in Cap Screw production.

Originators of the modern cold-forging method that produces stronger more uniform fasteners by . . .

the KAUFMAN Process

DOUBLE EXTRUSION

CLEVELAND *Top Quality* FASTENERS

*The Cleveland Cap Screw Company*

2917 EAST 79TH STREET • CLEVELAND 4, OHIO

SPECIALISTS FOR 30 YEARS IN CAP AND SET SCREWS AND MILLED STUDS

LOS ANGELES 21
1015 Santa Fe Ave., Vandike 2994

SEATTLE 14
1006 Lowman Building, Seneca 2420

SAN FRANCISCO 5
50 Hawthorne St., Garfield 1-2075

# In Our Mail Box

## Ford and the West

*Editor, Western Industry:*

One of the first and possibly most important reasons why the purchasing program as inaugurated by the Ford Motor Company can be important to Western manufacturers is the volume of steady production offered.

A large number of Western manufacturers have never had the opportunity to get a volume of production which would permit long range planning.

A quantity of work such as offered by Ford Motor Company will help to efface the proverb so often used "we cannot compete with eastern manufacturing."

It is my firm belief, not only can we compete, we can better our eastern neighbors' record. With the ever present need for more and less costly production I believe it would be much easier for Western enterprise to produce on a more modern basis.

After several visits in a number of eastern automotive suppliers' factories one cannot help but realize there is a need for more modern equipment and improvements. It is obvious the expense of rebuilding and re-equipping some of these factories would far outweigh the cost of starting from scratch.

In many parts of the West we now have a good, high-grade labor market which in itself will improve production methods. I also firmly believe the changes required in many Western factories would be very minor as compared to those which might be required of the older established plants.

World War II proved to all of us, including Ford Motor Company, that smaller more specialized manufacturing plants could produce on a much more economical scale.

When Henry Ford II made the statement that a moderate and considered decentralization of the auto industry could help the economy of our nation he certainly got down to a basic fact.

The national trend seems to demand a better and broader distribution of wealth.

I know no better way to accomplish this than to have Western manufacturers consider carefully the possibilities offered by the Ford Motor Company's Western purchasing program.

As one Western manufacturer we can truly say it has helped us considerably.

Because a great number of our Western cities have been built around the use of the automobile, it behooves all of us to get as much of this production as we can on a profitable basis.

Therefore, may we urge you consider this type of production thoughtfully. It requires almost a completely new trend of thinking and planning. For even one manufacturer to make the mistake of not producing after commitments and production schedules have been set would seriously impair the program and injure the prospects and plans of others.

The Ford Motor Company Western purchasing program can be of great value to the growth of Western industry.

J. W. SHEEHAN, President
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## Isogonics

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May I be permitted to approach you with a view to securing your kind assistance and cooperation in the following matter:

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*(Continued on page 21)*

# EDITORIAL COMMENT

## Inter-Industry Cooperation

HOW much industries in the West need to understand each other! How much they need to realize their interdependence, their common problems and opportunities! How much they need to grasp the fact that they can cooperate for their mutual advantage! How much they need to think on an all-Western scale!

Many industries, perhaps all of them, feel they are misunderstood by the rest of the West, if not by the country as a whole, and no doubt with good reason. So they embark on a public relations job, using various methods, such as educating Congress and state legislatures, buying newspaper space and radio time, issuing pamphlets, hiring publicity men to get free space for them in the press, providing speakers for service clubs and other groups, and so on.

Yet all these efforts are likely to miss the fact that industries need first of all to explain their situation to each other on such fundamental questions as availability and use of raw materials, development of markets, adjustment of freight rates, exploration and protection of natural resources.

But how to go about this? It seems to us that a good way to start would be for each industry in the West to set aside, at its annual convention, time to hear a couple of speakers from other industries present concise but comprehensive pictures of the conditions and problems these visitors face.

In many cases the interrelation is such that common agreement could be reached, or at least understanding and respect gained for differing viewpoints. For example, the fuel and energy groups—electricity, petroleum, natural gas, coal—could well afford to interchange speakers. Producers of raw materials, such as metals, chemicals and lumber on one hand and organization of manufacturers on the other would be greatly enlightened by learning each others' needs.

Back in wartime the plastics and plywood groups on the Pacific Coast held a joint meeting for the express purpose of ascertaining what they had in common. Opportunities for such get-togethers may be limited, but a general practice at industry conventions of bringing in representatives of other industries would go a long way toward replacing ignorance with enlightenment and distrust with tolerance or even active cooperation. And most of all, it would help to build that Western unity so sorely needed.

## A Practical Book Review Page

TOO many people feel they cannot spare the time to read business books, because they cannot afford wasting valuable hours on the wrong ones. Furthermore, book reviews in too many cases do not serve as a reliable guide because the review has been made a perfunctory affair.

To overcome these objections as far as possible, and to provide an analysis of sufficient penetration to indicate the real keynote and scope of the books reviewed, *Western Industry* is inaugurating in this issue a page called "The Industrial Bookshelf," intended to meet the needs of both top and middle management and as far down the supervisory scale as is practical.

Rather than attempt to deal with a large number of books, the effort will be to report on a few outstanding volumes which industrialists can regard as "must" reading. The page is a cooperative arrangement with the School of Management of Golden Gate College, where constant watch is kept for the most worthwhile books.

# CLEVELAND *Top Quality* FASTENERS
## bring you the advantages of *specialization*

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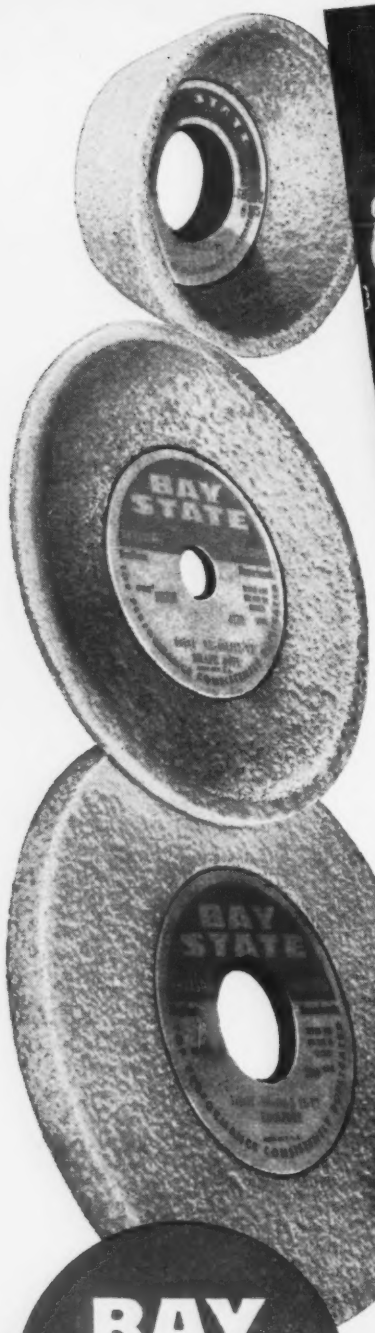
*Gutenberg examining the first paper to be printed with movable type — about the middle of the 15th century.*




# KOOLPORE® was unheard of then!

Yes, there was no word about KOOLPORE grinding wheels on the first paper to be printed with movable type, but today there's plenty of good words about KOOLPORE — both in print and throughout industry.

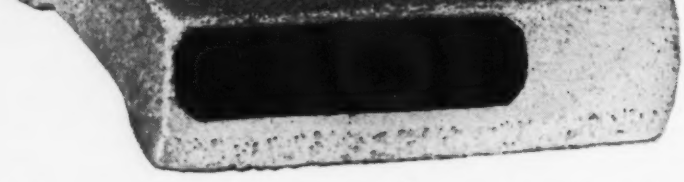
These BAY STATE abrasive products, with their large pore spaces, are giving an outstanding performance on countless SURFACING and TOOL and CUTTER JOBS that require extra coolness of cut, and fast, heavy removal of metal.

Here's 5 features that make KOOLPORE grinding wheels superior:

1 — Faster Cutting
2 — Cooler Cutting
3 — No Chip Jam
4 — Greater Clearance
5 — Increased Production

Write for Koolpore folder which includes specifications.

*Branch Offices and Warehouses — Chicago — Detroit*
*Distributors — All Principal Cities*



**BAY STATE®**

*Top Performance Consistently Duplicated*

**BAY STATE ABRASIVE PRODUCTS CO., WESTBORO, MASSACHUSETTS, U. S. A.**

SEND FOR OUR BULLETIN SN-1 FOR MORE COMPLETE INFORMATION

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PACIFIC METALS CO., LTD.
3100-19th St., San Francisco, Calif.

NORTHWESTERN TOOL AND SUPPLY CO.
2706 Second Ave., Seattle, Washington

NORTHWESTERN TOOL AND SUPPLY CO.
27 Southeast Hawthorn Blvd., Portland, Ore.

## MAIL BOX— *(Continued from page 19)*

last, got particulars of your periodical, as well as your name and address. It is a considerable time ago that I was given a reference to "*Western Industry*, August 1945," said to contain an article on "Isogonics," an invention likely to revolutionize drafting, and to refer to a textbook by Nelson E. Bohall, published in 1945, dealing with the same subjct.

All attempts to ascertain particulars of *Western Industry* and of Bohall's book failed completely, until a few days ago the American Library obliged me with your name and address.

I beg to inquire whether you are prepared to let me have a photostat copy of the respective page containing the article on Isogonics. The reason why I do not ask for the original August 1945 number is that I am anxious to secure the information via Air Mail, and sending a complete number of a periodical would be too expensive.

Unless the article in question contains full particulars (title, name of publisher, price) of Bohall's book, will you also be kind enough to let me have them.

F. HILLER
Consulting Chemical Engineer
Highgate, London, N. 6
England.

### Job Evaluation

*Editor, Western Industry:*

We were very interested in your article, "Job Evaluation: A Simple Tool for Any Plant," in *Western Industry* for January, 1948.

Can you tell us how we can secure a copy of the CMA Job Evaluation Plan?

G. H. PERRY
R. E. BERGLUND, Management Consultant
801 Easton Bldg.
Oakland 12, Calif.

### West On Its Way

*Editor, Western Industry:*

We find the department "The West on It's Way" very interesting and informative and we pass on the leads to our various sales offices and salesmen.

However, the pages are printed so that we can't clip out the paragraphs without destroying the information on the reverse side as the columns are printed on the binding edge side of each page.

Wouldn't it be possible to print the column on the left (or right) side of each page, thus permitting the items to be clipped out without harming the items on the other side of the sheet?

We believe that other firms may also wish to clip these paragraphs out for distribution to their salesmen and would appreciate making this suggested change.

GLENN R. SMITH
Western District Manager
Lyon Metal Products, Inc.
Los Angeles, Calif.

### He Wants Arden

*Editor, Western Industry:*

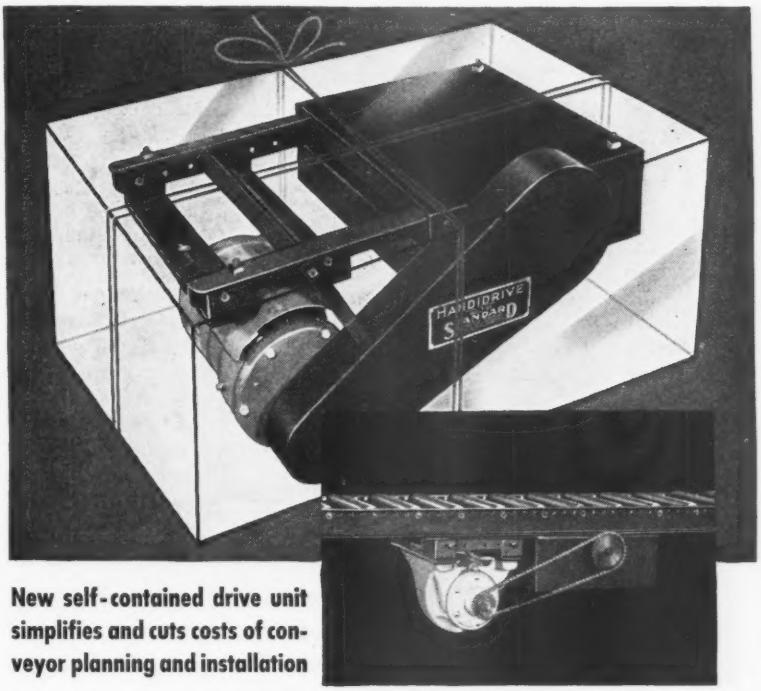
We have found *Western Industry* very worthwhile editorially speaking, and we look forward to receiving each new issue. Two articles have proved particularly helpful to us recently. One was the article describing how workers are protected in a nuclear energy plant. It was particularly helpful because it showed clearly that a project that is hazardous by nature can be made safe for the workers if management, through the use of skilled supervision and labor; a well balancd training program; proper engineering design for safety; and an active safety organization makes safe operation an objective. We were particularly pleased with this article

*(Continued on page 23)*


## Announcing the new Standard

# HANDI-DRIVE

**. . a "power package" unit for all types of roller and belt conveyors**




**New self-contained drive unit simplifies and cuts costs of conveyor planning and installation**

Here it is! A packaged power unit that gives every conveyor user the opportunity to be his own layout engineer — to change his conveyor system to suit varying plant conditions in a minimum of time!

**Converts gravity conveyors to live belt or roller conveyor quickly . . at low cost**

The Handi-Drive is a self-contained drive unit for applying tractive power to gravity conveyor belt or rollers. Equally important, using standard units you can build a conveyor system custom-planned to your individual plant needs. Standard units are stocked at the factory — you can get them now!

If you want to convert your present gravity conveyors to powered units — or if you want to install your own new system . . . send for the Handi-Drive Bulletin No.WI-48. It gives you complete design information and prices — tells you how to lay out your system, gives complete data on inclines, belt and roller widths, curves, weights to be handled and types of packaging or units to be moved. Write: Standard Conveyor Company, North St. Paul, Minnesota.

**SEND FOR HANDI-DRIVE BULLETIN**

Standard
GRAVITY & POWER
CONVEYORS

"wanna start somethin'?"

use a GE motor starter

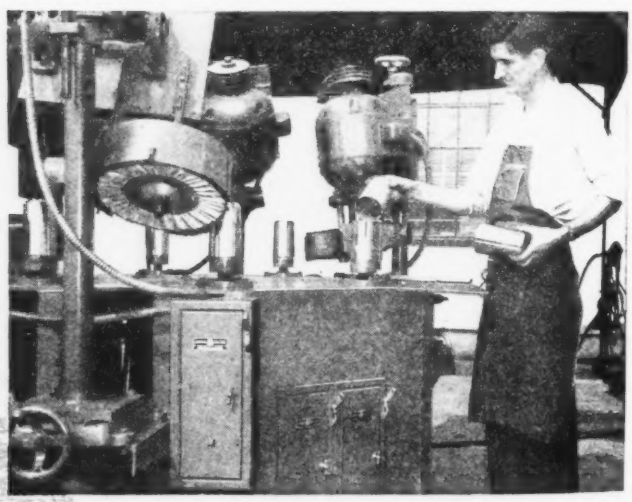
These G-E combination starters give your motors money-saving protection—three ways. Providing short circuit, overload and undervoltage protection, they save you installation costs because fuses, disconnect switch and magnetic starter are all in one unit. Whatever your operating condition, there's a combination starter to do the job. See bulletin GEA-3571A for details.

**MORE G-E STARTERS** General Electric has a complete line of motor starters, manual or magnetic, full- or reduced-voltage, reversing or nonreversing from 1 to 1000 horsepower ratings. All G-E starters come in a variety of enclosures. For more information on all G-E starters, including those shown below, ask your nearest G-E office for catalog GEA-642. *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*

**CR1061 G.E.'s smallest, most inexpensive starter for manual control of single-phase, ½-hp motors.**

**CR1062 Sturdy, low-priced starter for manual control of single and three-phase motors up to 7½ hp.**

**CR1034 A simple, manual, reduced-voltage starter for preventing voltage dips and shock from too sudden starting of motors ranging from 5 to 200 hp (four sizes).**



**Polishing off "Mix-All" food and drink containers is the job of this unique, automatic, rotary table-type buffing machine built by the Square Deal Machine Company of Los Angeles for Western Die Casting Company. Continuity of operation is assured because combination starters, in one compact unit, protect your motors from short circuits, overloads, and undervoltages.**

GENERAL ELECTRIC

## MAIL BOX— *(Continued from page 21)*

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JAMES A. BROADSTON
Aerophysics Laboratory
North American Aviation, Inc.
Los Angeles 45, Calif.

### We Take a Bow

*Editor, Western Industry:*

This office has received information that your organization is publishing a brochure entitled "The Story of Western Industry."

We would appreciate three copies of this material at your earliest opportunity for perusal by our staff.

I wish to take this opportunity to pay high compliment to your publication, *Western Industry*, one of the outstanding documents of its type that passes over this desk.

RODNEY C. RICHARDSON
Acting Deputy Director
State of California Office
of Director of Planning & Research
Sacramento, Calif.

### Colorado Fan

*Editor, Western Industry:*

You recently published an article by V. F. Parry of Bureau of Mines. He is at Golden, Colorado. My January issue got lost, as my wife sent it to me at Denver, and I failed to receive same. Please send a copy and bill me for same.

You are making some of our Colorado people understand the good of your efforts.

SAMUEL G. PORTER
Grand Junction, Colorado

### Blackstrap Molasses

*Editor, Western Industry:*

I would like to obtain two copies of an article entitled "Ionization of Blackstrap Molasses" (Western Sugar Plants Pioneer in New Ion-Exchange Process, Jan. 1947), which I am told appeared in your magazine.

BRUCE S. ROBERTSON
Research Consultant
Chicago 2, Ill.

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M. W. FORT
A. & G. J. Caldwell, Inc.
Newburyport, Mass.

A new era of lightweight construction has been opened by AW Dynalloy, the versatile high strength low alloy steel. Bigger payloads in trucks, freight cars and buses are now made possible. With AW Dynalloy you can reduce dead-weight as much as 40% without any reduction in strength or safety. This extremely tough steel has 4 to 6 times greater resistance to atmospheric corrosion than plain carbon steel and twice that of copper bearing mild steel. AW Dynalloy's excellent weldability, ductility and cold forming properties combined with its high resistance to impact, abrasion and fatigue make it exceptionally valuable for constructing vehicles, portable and stationary structures. Look into the advantages of AW Dynalloy now.

Write for your copy of our New Folder H-3. It contains helpful information and maximum sizes.

**PHYSICAL PROPERTIES OF AW DYNALLOY**

| | |
|---|---|
| Yield Point P.S.I. Minimum | 50,000 |
| Tensile Strength P.S.I. | 65-80,000 |
| Elongation in 2", %, Minimum | 23.0 |
| *Elongation in 8", %, Minimum | 1,500,000 T. S. |
| Endurance Limit P.S.I. | 45,000 |
| Specimen Cold Bend, 180° @ diameter=1 thickness | |

*For material under 5/16" to 3/16" inclusive, deduct 1.25 per cent for each decrease of 1/32" below 5/16" from the percentage of elongation in 8" specified above.

**AW DYNALLOY**
THE HIGH STRENGTH LOW ALLOY STEEL
*A Product of* ALAN WOOD STEEL COMPANY
CONSHOHOCKEN, PENNA.

"wanna start somethin'?"
use a motor starter
These G-E combination starters give your motors money-saving protection—three ways. Providing short circuit, overload and undervoltage protection, they save you installation costs because fuses, disconnect switch and magnetic starter are all in one unit. Whatever your operating condition, there's a combination starter to do the job. See bulletin GEA-3571A for details.
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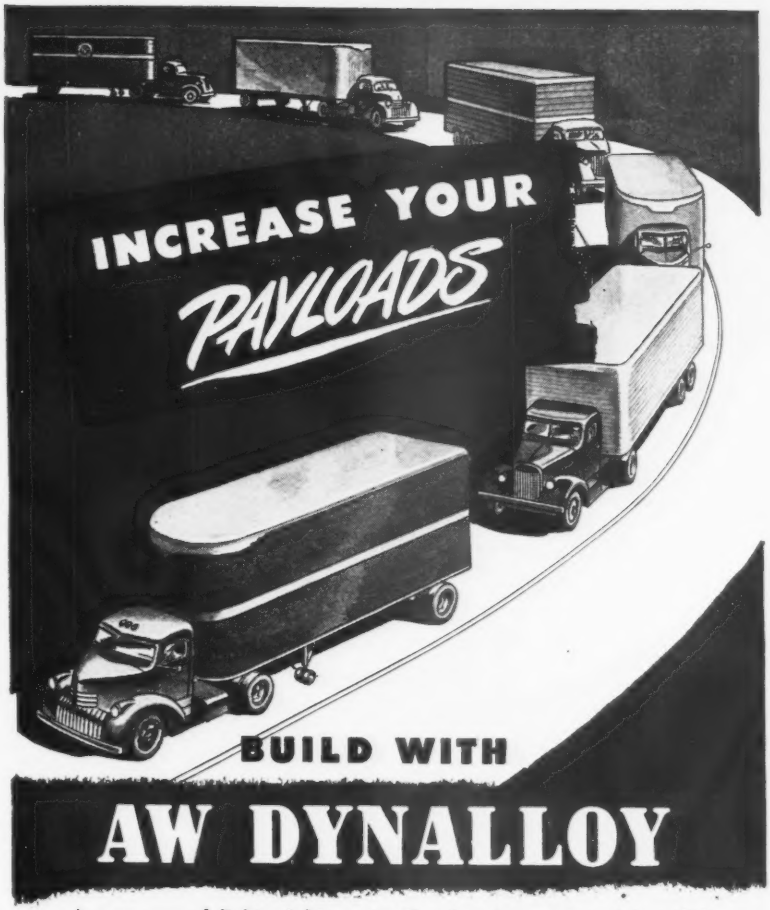


A new era of lightweight construction has been opened by AW Dynalloy, the versatile high strength low alloy steel. Bigger payloads in trucks, freight cars and buses are now made possible. With AW Dynalloy you can reduce dead-weight as much as 40% without any reduction in strength or safety. This extremely tough steel has 4 to 6 times greater resistance to atmospheric corrosion than plain carbon steel and twice that of copper bearing mild steel. AW Dynalloy's excellent weldability, ductility and cold forming properties combined with its high resistance to impact, abrasion and fatigue make it exceptionally valuable for constructing vehicles, portable and stationary structures. Look into the advantages of AW Dynalloy now.

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**AW DYNALLOY**

THE HIGH STRENGTH LOW ALLOY STEEL

*A Product of* ALAN WOOD STEEL COMPANY
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In our ten warehouses, conveniently located from coast to coast, we are gradually building our stocks of steel to permit us to do a better job of meeting your requirements for—Stainless, High Strength and Alloy Steels; Hot Rolled and Cold Finished Bars, Structural Shapes, Plates, Sheets, Metalworking Machinery, Industrial Supplies, etc.

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| BALTIMORE (3) | Bush & Wicomico Sts., P. O. Box 2036 | GIlmor 3100 |
| BOSTON | 176 Lincoln St., (Allston 34), P. O. Box 42 | STadium 2-9400 |
| CLEVELAND (14) | 1394 East 39th St. | HEnderson 5750 |
| MILWAUKEE (1) | 4027 West Scott St., P. O. Box 2045 | MItchell 7500 |
| NEWARK (1), N. J. | Foot of Bessemer St., P. O. Box 479 | Bigelow 3-5920 REctor 2-6560—BErgen 3-1614 |
| PITTSBURGH (12) | 1281 Reedsdale St., N. S. | CEdar 7780 |
| ST. LOUIS (3) | 311 S. Sarah St., P. O. Box 27 | LUcas 0440 |
| TWIN CITY | 2545 University Ave., St. Paul (4), Minn. | NEstor 7311 |

UNITED STATES STEEL

# THE WESTERN OUTLOOK..*News...Statistics...* 1

***Non-durable goods employment in California breaks record while durables decline slightly, Pacific Northwest durables up; California's critical power shortage due to drought worsens; Aluminum operations expand; Coast population growth strains steel capacity; Meat plants curtail expansion plans; Flour mills running only part time; Lumber and plywood on the increase.***

## Employment Picture

DESPITE a 12,000 employment drop in aircraft (9,000) and shipbuilding (3,000), the California durable goods industrial employment as of January, 1948, dropped only 1,000 below January of 1947. In the non-durable goods, employment in January 1948 was the highest on record in the state. These facts, of course, reflect the growing population of California as well as increased manufacturing.

From the office of M. I. Gershenson, Chief of Division, State of California, Department of Industrial Relations, labor statistics and research, comes the information that further determines the profile of the business curve. Chemicals and petroleum products employment is high, which always reflects the industrial level generally. Any curtailment of employees in chemical companies is due to lack of electric power caused by the drought, and not to lack of business.

Printing and publishing are rocketing skyward, with apparel showing record high employment that beats all prewar figures. Iron and steel, though not employing as during the wartime peak, are maintaining the same level as in 1947. Non-ferrous metals and products are slightly below a year ago, probably due to less demand for aluminum products. Reflecting steel shortages, machinery manufacturing employment in California is below 1947.

Auto assembly employment is holding the same high level it has had for the past four months, and lumber industries experienced the highest January on record, despite the usual seasonal drop.

Employment in California electrical equipment and products is up 20 per cent over a year ago, and furniture and wood products are high. Stone, clay and glass, which includes quarrying, is at an all-time high, reflecting the manufacture of building materials, such as cement, lime, and plaster.

Total employment in all California manufacturing for January 1948 is 704,100; non-durable industries show 315,600 employed, and durable industries employed 388,500 last January.

In Montana, future employment looks bright, with 4,000 more employed in January of 1948 than employed a year ago. The construction industry is breaking all peacetime precedents for working through the winter. Montana mining industry is also due for expansion, it is predicted, provided qualified miners can be found in sufficient number. The preponderance of evidence today points to continuing high employment conditions.

Washington total non-agricultural employment was estimated at 663,300 for January 1948. This figure is 18,200 above January 1947 level. Employment in several of Washington's major industries, including contract construction, lumber, transportation equipment, iron and steel, and chemicals, increased substantially during 1947. These industries, which account for 20 per cent of the non-agricultural employment in Washington, are 20 per cent above the January 1947 level. Employment in the transportation equipment industry increased 1,200 during the month as, unlike California, aircraft and shipbuilding activities in the Seattle area increased.

January 1948 employment in Nevada declined in five major industries, showing the effect of anticipated seasonal movement. Mining proved contrary to the general rule, and added 100 workers to bring employment up to the January 1947 level of 3,500 workers, an increase of 2.9 per cent from mid-December 1947. With the greater availability of men and materials, the mines and mills are swinging into what approached full production for the first time since early in the war. Manufacturing industries in Nevada dropped from 3,600 in December 1947 to 3,500 in January 1948, which was a 2.8 per cent loss from January a year ago.

In Utah the labor market activities as of February 1, are at a low ebb. General lassitude, typical of this time of year, prevails throughout the state. Mining employment, however, is holding at a higher than average figure but planned expansion in many mines is being hampered by lack of manpower, which is a direct result of housing dearth. Manufacturing is now 6,000 below the September peak, with little change expected until June. Planned industrial expansion points to competition for labor as soon as the weather improves.

### MANUFACTURING EMPLOYMENT

*Estimated Number of Employees in Non-Agricultural Establishments—Source: U. S. Bureau of Labor Statistics*

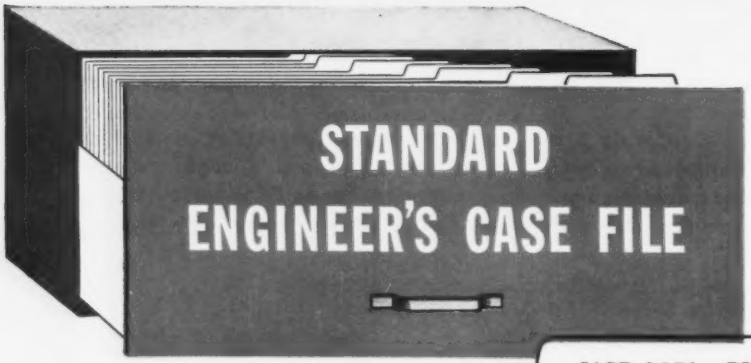
| | MONTANA | | IDAHO | | WYOMING | | COLORADO | | NEW MEXICO | | ARIZONA | | UTAH | | NEVADA | | TOTAL MTN. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 |
| August | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 12,500 | 12,700 | ..... | 29,620 | 3,400 | 4,000 | ..... | ..... |
| September | 16,900 | 18,100 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 12,500 | 12,700 | ..... | 32,240 | 3,400 | 3,700 | ..... | ..... |
| October | 18,000 | 19,100 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 12,700 | 12,600 | ..... | 29,730 | 3,400 | 3,700 | ..... | ..... |
| November | 18,000 | 18,600 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 12,700 | 13,000 | 27,830 | 28,180 | 3,500 | 3,700 | ..... | ..... |
| December | 17,900 | 18,500 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 13,900 | 12,900 | 27,710 | 27,720 | 3,500 | 3,600 | ..... | ..... |
| | | | | | | | | | | | 1947 | 1948 | 1947 | 1948 | 1947 | 1948 | | |
| January | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 13,300 | 12,900 | 22,690 | 26,080 | 3,600 | 3,500 | ..... | ..... |

| | WASHINGTON | | OREGON | | CALIFORNIA | | TOTAL PACIFIC | |
|---|---|---|---|---|---|---|---|---|
| | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 |
| August | 177,300 | 185,000 | ..... | 146,450 | 740,000 | 758,900 | ..... | ..... |
| September | 179,400 | 191,700 | 135,846 | 145,500 | 738,800 | 743,000 | 1,048,646 | 1,078,750 |
| October | 175,400 | 183,900 | ..... | 140,700 | 725,700 | 734,300 | ..... | ..... |
| November | 168,000 | 178,200 | ..... | 133,100 | 705,500 | 716,000 | ..... | ..... |
| December | 166,000 | 174,600 | ..... | 130,000 | 705,800 | 714,800 | ..... | ..... |
| | 1947 | 1948 | | | 1947 | 1948 | | |
| January | 162,300 | 172,900 | ..... | ..... | 696,900 | 704,100 | ..... | ..... |

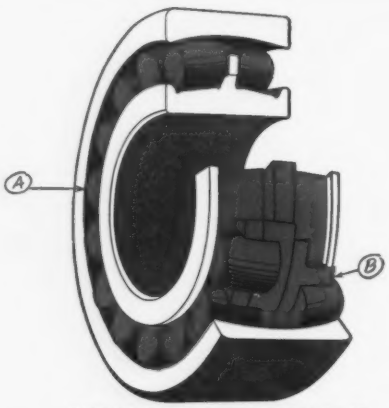
### INSURED UNEMPLOYMENT

*(Under all programs: figures in thousands. From Social Security Board)*

| Week ending | Ariz. | Colo. | Idaho | Mont. | Nev. | N. Mex. | Utah | Wyo. | Total Mtn. | Calif. | Ore. | Wash. | Total Pacific |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aug. 2 | 6.6 | 5.3 | 1.7 | 1.5 | 1.6 | 3.0 | 3.7 | .5 | 23.9 | 206.2 | 13.6 | 26.4 | 246.2 |
| Sept. 6 | 5.7 | 4.1 | 1.2 | 1.4 | 1.4 | 2.1 | 3.4 | .3 | 19.6 | 164.4 | 10.9 | 24.5 | 199.8 |
| Oct. 4 | 4.3 | 2.5 | .7 | 1.1 | 1.3 | 1.7 | 2.3 | .2 | 14.1 | 138.3 | 8.4 | 21.3 | 168.0 |
| Nov. 8 | 4.1 | 2.5 | 1.3 | 1.4 | 1.5 | 2.0 | 3.6 | .3 | 16.7 | 134.1 | 14.7 | 24.6 | 173.4 |
| Dec. 6 | 4.7 | 4.2 | 3.9 | 2.9 | 1.8 | 3.2 | 4.3 | .6 | 25.6 | 176.4 | 19.9 | 36.3 | 232.6 |
| Jan. 3 | 5.1 | 6.5 | 6.6 | 4.7 | 2.0 | 5.0 | 6.3 | 1.1 | 37.3 | 204.2 | 27.2 | 45.7 | 277.1 |



## CASE 1050--PROVIDING FLUID LUBRICATION IN ANTI-FRICTION BEARINGS WITHOUT LEAKAGE.




HEAVY-DUTY ROLLER BEARING

Heavy-duty industrial roller bearings started easier and ran freer when lubricated with Calol Grease BRB-340. Specially-made for all anti-friction bearings. Apply with grease gun or by packing.

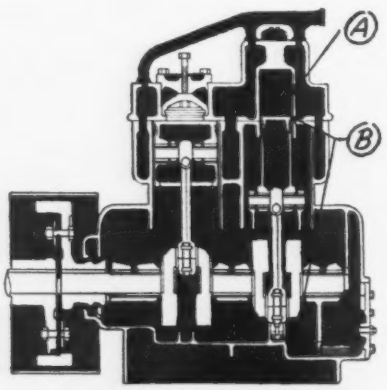
Has unusual ability - softens around roller and balls in bearings to oil-like viscosity but remains firm on outer parts. Resets quickly so oil swept aside by moving bearing parts keeps outer grease seal intact.

A. Soft consistency around moving parts of bearings lowers starting torque, reduces internal friction.

B. Firm grease forms seal that helps prevent leakage.

High resistance to deterioration under high speed conditions and extreme temperatures provides exceptional lubrication over extended periods of operation.

## CASE 1045--MINIMIZING OIL OXIDATION AND DEPOSIT TROUBLE IN AIR COMPRESSORS.




TWO-STAGE, 2 CYLINDER AIR COMPRESSOR

In air compressors of all types and sizes, heat-resistant Calol Multi-Service Oil materially reduced deposits on discharge valves, cylinders, bearings and in crankcases. Comes in six viscosity grades: 45X, approximately SAE 10; 50X, SAE 20 medium; 55X, SAE 20 heavy; 65X, SAE 30; 75X, SAE 40; 85X, SAE 50.

A. Detergent compound keeps parts cleaned of gum and lacquer and prevents ring sticking . . . provides constant lubrication on hot spots.

B. Oxidation inhibitor prevents formation of sludge and other deposits caused by air, extreme heat, moisture, dust and other contaminants.

Has high metal-adherent quality - maintains film of oil in idle machines which prevents starting wear and protects against rusting.

Calol Multi-Service Oil will correct gum and lacquer problems in many machines - in air compressors, Diesel and natural gas engines, enclosed gears, bearings.

Trademarks, "Calol," "RPM," Reg. U. S. Pat. Off.

Standard Fuel and Lubricant Engineers are always at your service. They'll gladly give you expert service—make your maintenance job easier. Call your local Standard Representative or write Standard of California, 225 Bush St., San Francisco 20, California.

RPM CALOL

FOR EVERY NEED A **STANDARD OF CALIFORNIA** JOB-PROVED PRODUCT

In spite of continued heavy in-migration following the absorption of thousands of returned veterans and war workers, Oregon's economy has weathered the third postwar winter with less seasonal unemployment than any peacetime February on record. Because of cannery layoffs, seasonal unemployment started early last fall, but heavy lumber demand and excellent trade conditions kept the number of winter jobs on the highest level yet recorded.

Resumption of near-capacity operations in wood products, all the way from logging to box and furniture factories, after year-end layoffs increased employment throughout Oregon in February and promised an early spring pick-up. Other seasonal lines, such as food processing, textiles and apparel, paper mills and even wholesalers, also were expanding to help maintain practically double the number of winter-time industrial jobs reported by Oregon employers before the war.

## Commerce and Banking

Department store sales in the 12th Federal Reserve District for 1947 show a gain of approximately 7 per cent in dollar volume over 1946. Phoenix led the procession with a gain of about 10 per cent, with Spokane, Portland and southern California close behind. Vallejo-Napa in California showed a substantial decrease, and southern Idaho and Utah outside of Salt Lake City fell off slightly. The San Francisco-Oakland area as a whole practically stood still, although individual city gains within the area were reported.

Wholesalers' sales for the intermountain area show 25 per cent gain over 1946, for the Pacific states 15 per cent. Percentage declines in the Pacific states were recorded as follows: clothings and furnishings (except shoes) —12, industrial supplies —1, jewelry —11, leather and shoe findings —8. In the mountain states jewelry, with —37, was the only downturn.

Gains in the Pacific states were as follows: automotive supplies +4, shoes and other footwear +26, drugs and sundries +1, dry goods +15, electrical group +58, fresh fruits and vegetables +5, furniture and house furnishings +27, groceries +6, meat and meat products +45, beer +10, general hardware +16, plumbing and heating supplies +41, lumber and building materials +44, machinery, equipment and supplies, except electrical +7, metal +8. Mountain states gains were: automotive supplies +16, drugs and sundries +13, electrical group +75, groceries +9, general hardware +27.

Pacific Northwest carloadings for January topped January 1947, and both of these months were well ahead of the four preceding Januarys.

## Power and Fuels

Lack of rain in northern California has caused a critical electric power shortage in that area, with industry power loads being cut back, farmers pumping overtime for irrigation and the situation threatening to become worse as the spring advances. Elsewhere in the West the situation is not so extreme, except for Arizona.

As of February 15, Pacific Gas & Electric water storage in reservoirs averaged only 46 per cent of capacity compared to 55 per cent a year ago, which also was a year of limited precipitation. Operation of hydroelectric generators was down to 54 per cent of total generator production compared to 57 per cent a year ago, while steam generation up to 46 per cent from 43 per cent a year ago.

Southern California has Boulder Dam to fall back on, with the water storage in Lake Mead better than last year because the ordinary releases of water for power purposes take care of irrigation needs and the government has been able to build up the water level behind the dam. Southern California also gets much steam-generated power from Southern California Edison.

Arizona, where reservoirs have been practically dry for many months and agriculture has suffered greatly, has been helped out by the importation of some power from southern California, and when Parker Dam comes in it is hoped to supply Arizona as much as 90,000 kw.

The Pacific Northwest has not suffered from lack of water, but is under-equipped with hydro facilities for which there is no immediate relief. Bonneville Power Administration has recommended that 4,000,000 kw. of additional government hydro generating capacity be constructed by 1956. Bonneville says this program plus private power development will not be sufficient to alleviate the power shortage until 1954. Some power has been coming into the Spokane region from Montana through the Washington Water Power system, amounting to 90,000 kw. on peak. Montana, Utah and Idaho are in fair shape, although not too well off.

Current oil shortages may help keep alive the U. S. shipbuilding industry, which has come perilously near the end of its backlog of work. The oil industry has just placed orders for 18 new tanker ships, at a time when American shipyards have orders for only 23 vessels—all but six of them due for completion before July 1.

### WHOLESALERS' SALES

*In thousands of dollars. Percentage changes are from corresponding month of preceding year. From Bureau of the Census.*

**MOUNTAIN**

| | Automotive Supplies | Change | Electrical Goods | Change | Furn. and house furn. | Change | Groc. and foods exc. farm prod. | Change | General Hardware | Change |
|---|---|---|---|---|---|---|---|---|---|---|
| July | 737 | +14 | 2,915 | + 95 | ... | .. | 3,783 | +21 | 1,775 | +29 |
| August | 631 | + 7 | 3,653 | + 52 | ... | .. | 3,880 | +10 | 1,816 | +10 |
| Sept. | 396 | — 7 | 3,552 | + 75 | ... | .. | 4,337 | +16 | 1,695 | + 7 |
| Oct. | 828 | + 5 | 4,104 | + 58 | 397 | —18 | 5,227 | + 9 | 2,350 | +33 |
| Nov. | 654 | +24 | 3,924 | + 51 | ... | .. | 3,906 | — 1 | 2,015 | +16. |
| Dec. | 635 | + 3 | 5,368 | + 27 | ... | .. | 3,647 | — 7 | 1,513 | — 3 |

**PACIFIC**

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| July | 2,932 | + 4 | 10,528 | + 63 | 1,617 | — 7 | 11,890 | +19 | 5,523 | +16 | 1,594 | — 8 | 1,099 | + 26 | 704 | — 8 | 739 | + 4 |
| Aug. | 1,266 | + 1 | 12,078 | + 34 | 1,536 | + 21 | 7,780 | +10 | 6,201 | +22 | 1,481 | —25 | 1,341 | + 34 | 664 | + 9 | 696 | — 1 |
| Sept. | 3,211 | — 4 | 14,718 | + 40 | 3,545 | + 37 | 13,729 | +19 | 5,475 | +11 | 520 | — 9 | 1,587 | + 63 | 431 | + 9 | 799 | — 4 |
| Oct. | 3,245 | —11 | 18,232 | + 39 | 2,126 | — 1 | 11,574 | + 6 | 8,915 | + 5 | 603 | + 3 | 1,696 | + 55 | 791 | —10 | 818 | + 5 |
| Nov. | 1,790 | — 5 | 13,345 | + 30 | 329 | + 34 | 13,838 | + 3 | 7,260 | +14 | 466 | —26 | 1,682 | + 42 | 561 | —34 | 694 | +13 |
| Dec. | 2,560 | —13 | 21,380 | + 37 | 1,581 | + 5 | 13,302 | — 5 | 7,480 | — 2 | 615 | —12 | 1,444 | + 36 | 627 | —32 | 670 | + 7 |

### INDEX OF DEPARTMENT STORE SALES

*Index numbers, 1935-39 daily average=100 with seasonal adjustment. Compiled by Federal Reserve Bank.*

| | Total 12th Fed. Res. Dist. | | Southern California | | Northern California | | Portland | | Western Washington | | Eastern Washington and northern Idaho | | Utah and southern Idaho | | Phoenix | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 |
| July | 322 | 329 | 336 | 343 | 292 | 296 | 316 | 299 | 367 | 368 | 287 | 297 | 331 | 349 | 385 | 388 |
| August | 324 | 338 | 330 | 351 | 286 | 296 | 298 | 317 | 364 | 372 | 325 | 362 | 361 | 363 | 439 | 478 |
| September | 313 | 321 | 327 | 339 | 285 | 289 | 295 | 314 | 334 | 339 | 296 | 315 | 319 | 312 | 432 | 442 |
| October | 319 | 324 | 349 | 349 | 284 | 286 | 288 | 325 | 353 | 363 | 276 | 286 | 301 | 294 | 346 | 374 |
| November | 320 | 340 | 355 | 371 | 287 | 305 | 287 | 330 | 347 | 364 | 255 | 278 | 289 | 313 | 361 | 437 |
| December | 321 | 352 | 343 | 388 | 287 | 318 | 304 | 345 | 348 | 363 | 312 | 340 | 366 | 358 | 423 | 477 |

### FREIGHT

Cars of revenue freight, railroad carriers in 11 Western states.

*(Compiled from Assn. of Am. R.R. weekly reports)*

| | Carloadings | | Received from Eastern Connections | |
|---|---|---|---|---|
| | 1946 | 1947 | 1946 | 1947 |
| *July | 717,235 | 755,983 | 343,600 | 331,613 |
| *August | 694,085 | 728,578 | 374,898 | 381,068 |
| *September | 402,592 | 825,668 | 394,409 | 404,771 |
| October | 786,228 | 701,972 | 398,110 | 382,413 |
| November | 662,225 | 699,897 | 309,743 | 340,873 |
| December† | 526,827 | 519,397 | 289,873 | 281,887 |

*5-week period. †Incl. 4 weeks of following January.

### BANK LOANS

*Industrial, commercial and agricultural*
*(In millions of dollars)*

From weekly reporting member banks of Fed. Res. System in 7 western cities: L.A., S.F., Portland, Seattle, Tacoma, Spokane, and Salt Lake.

(Average of Wednesday reports)

| | |
|---|---|
| 1947 | |
| September | 1,824 |
| October | 1,857 |
| November | 1,899 |
| December | 1,943 |
| 1948 | |
| January | 1,976 |
| February | 1,999 |

### BANK DEPOSITS

*(In millions of dollars—adjusted)*

Daily Average month, all member banks in 12th Federal Res. Dist. Demand dposits excluding U. S. Gov't deposits, cash items in process ofcollection , and interbank dposits.

| | Net Demand Deposits | Time Deposits |
|---|---|---|
| 1947 | | |
| August | 8,096 | 5,909 |
| September | 8,813 | 5,920 |
| October | 8,905 | 5,949 |
| November | 8,978 | 5,949 |
| December | 9,114 | 5,938 |
| 1948 | | |
| January | 9,095 | 6,015 |

Chase can supply you
...WITH BRASS, COPPER, BRONZE PRODUCTS FROM STOCK!
WANT prompt delivery of brass and copper sheet, rod, wire, or tube? Or brass and bronze nuts and bolts, copper rivets and burs—a myriad of miscellaneous items? Try your local Chase warehouse.
There are 22 warehouses ready to serve you. Ready to fill your orders immediately, ready to place *big* orders directly with the mill for *prompt delivery!*
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*the Nation's Headquarters for*
**BRASS & COPPER**

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SUBSIDIARY OF KENNECOTT COPPER CORPORATION

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# THE WESTERN OUTLOOK..News...Statistics... 3

A bit of horsetrading by the Maritime Commission in disposing of the Government's ships will help alleviate the current petroleum pinch. Under a new policy, each MC tanker sold abroad must carry at least one cargo of oil to this country. Ten T-2 tank-ships just sold to Italy, for example, will bring not less than 10 shiploads of oil from the Caribbean to East Coast ports. Any American buyers will have to keep the surplus ships in domestic oil-handling trade until May 1.

In a further drive to make more petroleum products available, the Department of Commerce has slashed exports of gasoline and oil from 11,850,000 bbl. to 9,650,000 for the first quarter of 1948, and has asked the steel industry to put the petroleum industry in the top priority class in its voluntary allocation of scarce supplies.

An American Petroleum Institute survey shows that despite a winter season which in 10 U. S. cities averaged 32.7 per cent colder than last year, oil stocks held up surprisingly well. From 60,000,000 bbl. in November they dropped to 50,000,000 in January and 40,000,000 by February, a much-better-than-expected showing in the face of what looked like a very bad winter.

Oil exploration continues active and plans indicate 1948 will be still busier. California oilmen, for instance, expect to drill 2,320 wells, or 267 more than last year. A tabulation of 1947 results shows the risks involved in drilling in an unexplored area: Out of 359 "wildcat" wells, 67 produced oil, 12 gas, the balance being dry holes. This makes the odds against success about 4½ to 1.

More than a billion barrels of oil have been saved for America since Ethyl fluid was offered the public 25 years ago, according to its discoverer, General Motors' famed Charles (Boss) Kettering.

Intermountain coal production continues at a normal level, most mines working on a six-day week basis. Part of Utah's production was cut off for a couple of days during February because of a wildcat strike. Geneva Steel Company's coal mines have been setting new production records.

## ELECTRIC ENERGY

*(Production for Public Use—In thousands of kilowatt hours. Source: Federal Power Commission)*

| | Mountain | | Pacific Northwest | | California | | Total Pacific | |
|---|---|---|---|---|---|---|---|---|
| | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 |
| July | 1,005,000 | 1,154,831 | 1,000,953 | 1,286,253 | 1,628,605 | 1,848,005 | 2,629,558 | 3,134,258 |
| August | 982,553 | 1,102,713 | 1,088,455 | 1,344,586 | 1,700,150 | 1,823,537 | 2,788,605 | 3,168,123 |
| September | 924,999 | 1,081,065 | 1,109,086 | 1,325,425 | 1,547,003 | 1,695,630 | 2,656,089 | 3,021,055 |
| October | 992,528 | 1,059,691 | 1,251,343 | 1,422,487 | 1,523,254 | 1,654,464 | 2,774,597 | 3,076,951 |
| November | 937,678 | 1,064,947 | 1,302,623 | 1,484,350 | 1,443,167 | 1,531,154 | 2,745,790 | 3,015,504 |
| December | 1,002,170 | 1,191,939 | 1,413,478 | 1,606,168 | 1,490,316 | 1,620,287 | 2,903,794 | 3,226,455 |

## PETROLEUM

(California, Oregon, Washington, Arizona, Nevada)
*(From Bureau of Mines)*

| | CRUDE PRODUCTION (Barrels, daily avg.) | TOTAL DELIVERIES (Thousands of barrels daily) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | GASOLINE | | GAS OIL & DIESEL | | HEAVY FUEL OIL | | ALL PRODUCTS | |
| | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 |
| July | 918,239 | 329 | 335 | 72 | 88 | 326 | 360 | 859 | 935 |
| August | 917,684 | 325 | 370 | 67 | 100 | 355 | 362 | 885 | 985 |
| September | 914,747 | 318 | 370 | 77 | 113 | 339 | 386 | 860 | 1,030 |
| October | 921,463 | 320 | 356 | 100 | 139 | 326 | 375 | 870 | 1,010 |
| November | 929,552 | 293 | 317 | 128 | 138 | 363 | 380 | 896 | 978 |
| December | 927,197 | 308 | 349 | 146 | 173 | 416 | 441 | 993 | 1,091 |

## NATURAL GAS

(CALIFORNIA)
*(Compiled by Roy M. Bauer, gas supply supervisor, Southern California Gas Company)*

| | —Number of Consumers— | | *Utilization (In thousands of cubic feet)— | | | |
|---|---|---|---|---|---|---|
| 1947 | Domestic and Commercial | Industrial | Domestic and Commerc'l Sales | Industrial Sales | Electric Generation | Net Receipts from Producers |
| Avg. Apr.-June | 2,264,203 | 5,615 | 12,978,115 | 10,812,647 | 2,609,401 | 27,819,226 |
| July | 2,274,530 | 5,412 | 9,276,728 | 12,092,643 | 3,819,581 | 28,197,954 |
| August | 2,284,793 | 5,392 | 8,564,746 | 13,716,465 | 4,945,553 | 31,563,238 |
| September | 2,298,991 | 5,445 | 9,191,805 | 14,857,652 | 4,651,291 | 31,461,374 |

**Utilization figures do not include company use, storage, and unaccounted for.*

## BITUMINOUS COAL AND LIGNITE

*(In thousands of tons. From Bureau of Mines)*

| | (Colo.-N. Mexico) | | (Wyoming) | | (Utah) | | (Montana) | | (Wash.-Alaska) | |
|---|---|---|---|---|---|---|---|---|---|---|
| June | 503 | 523 | 444 | 608 | 472 | 560 | 300 | 150 | 118 | 107 |
| July | 464 | 298 | 615 | 345 | 548 | 394 | 293 | 182 | 114 | 71 |
| August | 573 | 490 | 736 | 530 | 566 | 504 | 275 | 255 | 122 | 104 |
| September | 679 | 628 | 745 | 650 | 590 | 513 | 343 | 274 | 124 | 116 |
| October | 828 | 640 | 903* | 797 | 627 | 505 | 402 | 318 | 151 | 152 |
| November | 559 | 660 | 636* | 793 | 442 | 560 | 308 | 309 | 115 | 139 |

*Includes Idaho.

## Steel

With every Pacific Coast city facing a problem of expansion of water service because of increased population, to say nothing of gas supplies, steel companies on the Pacific Coast have a problem of meeting demand entirely distinct from the steel shortages elsewhere in the country. New residential areas require water systems, and existing mains have to be enlarged, making heavy demands for pipe. In addition, the capacity of big pipelines bringing the water in from storage sources is being increased also. New natural gas and oil pipelines contribute to the demand, so that both pipe and plates apparently will continue critical for a long time to come.

Wire products are generally badly needed also, although a temporary slackening in demand for stucco netting has been reported. The drouth in California may diminish the call for such items as bale ties, which were in tremendous demand for the hay crop last year.

The price advance on semi-finished steel, which causes such a furore at Washington, had little impact on the Pacific Coast, because this is used mostly in highly integrated operations of the kind found in the eastern industrial centers and finds practically no market out here.

Some relief in the scrap situation has begun to appear through the government's scrapping of LSTs. Bethlehem and Kaiser were the high bidders on a lot of 40 in San Francisco Bay offered March 1. Forty more were to be bid for March 22, and a third batch of 40 in April. A few LSTs are being scrapped in Puget Sound, most of those at San Diego have been sold and 56 are being taken apart at Terminal Island by National Steel & Metals, subsidiary of a Baltimore concern who have been in operation on the Coast about six months. After the LSTs are gone, the government has still plenty of cargo vessels suitable for scrapping.

So much red tape surrounds the other government scrap in northern California that it may be a year before it finally reaches the market. Scrap prices remain firm at $25 a ton, which is below the eastern price, due to the fact that only half a dozen firms are seeking scrap on the Pacific Coast, whereas in the East and Middle West there are about 135 companies in the market for scrap.

## IRON AND STEEL

Western Area of the United States
*From American Iron and Steel Institute (in net tons)*

| | Pigiron Output | Percent of Capacity | Steel Output | Percent of Capacity |
|---|---|---|---|---|
| August | 204,153 | 94.7 | 358,691 | 87.2 |
| September | 188,749 | 90.7 | 350,937 | 88.3 |
| October | 193,489 | 89.8 | 378,227 | 92.0 |
| November | 184,861 | 88.6 | 374,169 | 94.0 |
| December | 209,815 | 97.6 | 397,905 | 97.0 |
| January | 211,208 | 95.4 | 398,553 | 92.8 |

## Alloy Steel

| | Output | Carbon Ingots, Hot Topped* |
|---|---|---|
| July | 2,670 | 8,447 |
| August | 3,994 | 9,918 |
| September | 4,321 | 7,228 |
| October | 5,855 | 11,769 |
| November | 5,318 | 10,434 |
| December | 3,717 | 9,134 |
| January | 3,445 | 8,588 |

*Included in total steel.

## COPPER

*(Short tons. From U. S. Bureau of Mines)*

| | ARIZONA | | UTAH | | MONTANA | | NEW MEXICO | | NEVADA | | TOTAL 11 WEST'N STATES | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 | 1946 | 1947 |
| July | 35,700 | 32,000 | 12,350 | 23,500 | 4,750 | 4,600 | 4,404 | 5,400 | 2,100 | 4,040 | 51,027 | 70,012 |
| August | 26,475 | 29,870 | 13,780 | 23,620 | 4,950 | 4,160 | 4,098 | 5,930 | 3,300 | 4,430 | 53,481 | 68,735 |
| September | 28,000 | 29,800 | 17,350 | 23,200 | 4,700 | 4,000 | 3,961 | 5,810 | 3,400 | 4,160 | 54,233 | 67,731 |
| October | 30,650 | 30,836 | 17,700 | 16,470 | 4,800 | 4,690 | 4,195 | 5,558 | 3,600 | 3,990 | 61,770 | 61,544 |
| November | 28,300 | 28,885 | 17,425 | 16,155 | 4,800 | 5,100 | 4,000 | 5,435 | 4,200 | 3,900 | 59,498 | 60,269 |
| December | 30,300 | 30,000 | 17,800 | 22,500 | 4,850 | 4,900 | 4,100 | 5,200 | 4,400 | 4,000 | 62,245 | 67,375 |

## Non-ferrous Metals

Increased aluminum production has been made possible by Bonneville Power Administration through release of additional power. Kaiser was given permission to reopen a sixth potline at the Mead works at Spokane, March 15, and operate it through July, Reynolds to reopen its Longview plant at the same time with 40,000 kilowatts of additional power which will be stepped up to 60,000 in June, and Alcoa to reopen a fifth potline at Vancouver to run through July. Bonneville will have an excess of power available in the summer, and the aluminum producers agreed to cut back use of power in the fall if necessary.

*(Continued on page 31)*

These trademarks reflect the fact that we produce many types of felt, meeting every need for this most versatile material. For full information as to the advantages and applications of the various AfCo felts, get in touch with the nearest office.

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Los Angeles 21: 763 E. 14th Street
Portland 14: 733 S. E. Union Avenue
Seattle 9: 404 Dexter Avenue
*Complete stocks and cutting shops*

**American Felt Company**
TRADE MARK

General Offices: Glenville, Conn.
Plants: Glenville, Conn.;
Franklin, Mass.; Newburgh, N. Y.; Detroit, Mich.

## Non-ferrous Metals—*(Cont. from page 29)*

Lease of portions of the magnesium reduction plant near Spokane to the Chromium Mining & Smelting Corp. and the Pend Oreille Mines & Metals Co., as announced late in February by the War Assets Administration, indicates that the plant will be the site of several experimental operations in the reduction of non-ferrous metals this spring and summer. In submitting a bid for lease of the plant, Chromium Mining & Smelting indicated that the ferro-silicon furnaces would be used for the production of ferro-chrome, ferro-chrome silicon, and ferro manganese, as well as ferro-silicon. Pend Oreille Mines is expected to undertake a commercial pilot operation in the electrolytic reduction of zinc.

Although national lead output was only 12 per cent above 1946, the Western states increased their tonnage and contributed 57 per cent of the total domestic output compared with 49 per cent in 1946. Idaho was again the second largest producer of lead in the United States, its production increasing 26 per cent. Western zinc production in 1947 increased to 54 per cent of the total domestic output from 48 per cent in 1946. Copper output in the Western states showed a good increase in 1947 except for Montana and Nevada.

General trend in the non-ferrous metal mining industry during February was slightly upward. Two factors stimulating to production were the increase in the price of zinc and some improvement in the manpower situation. All remained quiet on the labor front, despite a bitter internal fight within the International Union of Mine, Mill & Smelter Workers. Prospects are for a continuing high peacetime level of production during the spring.

## Lumber

Order for Douglas fir and associated species of timber showed a definite increase in the first four weeks of the year as compared with the same period last year. Production during the same period was materially above last year and shipments were also up, although not to as great an extent as production. Orders, production, and shipment of white pine are running about the same as last year, with the trend appearing to be slightly higher. Production is definitely above last year.

The car shortage which curtailed shipments, and in some cases production of lumber, last fall has been satisfactory during the winter, but another shortage is predicted for April and again for the fall of this year. Power shortages in southern Oregon and northern California resulted in some mill shutdowns during February. With a continuing low power reserve lumber mills will be subject to shutdowns and lowered production whenever power equipment fails.

Timber sales by the Forest Service during the month of February showed no inclination toward decreasing with bids continuing to run well over appraised prices.

### LUMBER

*(In thousands of board feet)*

*From West Coast Lumbermen's Association( Douglas Fir, Sitka Spruce, Port Orford Cedar, West Coast Hemlock, Western Red Cedar):*

| Year through January | 1946 | 1947 | 1948 |
|---|---|---|---|
| Production | 549,906 | 555,657 | 618,589 |

*From Western Pine Association figures (Idaho White Pine, Ponderosa, Sugar Pine and associated species):*

| Year through Nov. and Dec. | 1946 | 1947 |
|---|---|---|
| Production | 3,195,523 | 3,365,515 |
| | 1947 | 1948 |
| January Production | 83,772 | 104,501 |

## Plywood

Additions to the Douglas fir plywood production capacity last year totaled about 1,500,000,000 sq. ft. of annual production capacity. If all of the announced plans for new plants and increased capacity of existing plants are completed this year the increased production capacity should be at least equal to, if not greater than last year's increase. It does not appear likely that all announced plans will be completed and plants in production this year.

Preliminary estimates of 1947 production of softwood plywood is 1,698,000,000 sq. ft. on a ⅜-in. basis, compared with 1,441,000,000 in 1946.

Elliott Bay Mill Co. of Seattle has begun the production of mahogany plywood. Logs are being imported from the Philippine Islands at the rate of about 350,000 board feet per month. The first shipment arrived in January.

### SOFT PLYWOOD

From Bureau of the Census
*(In thousands of square feet)*

| | 1948 | 1947 |
|---|---|---|
| July | 95,734 | 104,487 |
| August | 126,631 | 137,042 |
| September | 129,270 | 146,985 |
| October | 149,600 | 170,325 |
| November | 129,635 | 144,637 |
| December | 121,816 | 149,999 |

## Pulp and Paper

Pulp and paper business on the West Coast expanded nearly 15 per cent last year over 1946, in consumption of raw material for pulp making. About 16 per cent of the country's woodpulp is now produced in Pacific Northwest mills, a slightly larger share than in 1946. Operations in 1947 were the biggest in Coast history, requiring some 3,175,000 cords of pulping wood.

### PULPWOOD

(Pacific Northwest)
*(Cords of 128 cu. ft., roughwood basis. Source: Bureau of Census)*

| | Receipts | Consumption |
|---|---|---|
| July | 362,477 | 344,851 |
| August | 395,124 | 269,009 |
| September | 459,427 | 264,641 |
| October | 334,649 | 281,753 |
| December | 250,992 | 253,600 |

## Flour

The flour industry on the Pacific Coast has run out of customers to a considerable extent, and some mills in the Northwest are reported cutting their grinds to three, four or five days a week. Domestic buying is not heavy, the baking business is reported off, and the government purchasing program is not so heavy as elsewhere in the country. Cheaper flour from Colorado is also reported to be entering Coast markets.

## Meat

For the first time in years, Western packing plants are beginning to post "No help wanted" signs on their doors. Many packers also are modifying expansion plans, in view of the effect of the drouth on local supplies which is causing the moving of livestock to other areas and forecasts increased importation of meats for the next year or two from other parts of the country. A surplus of heavy beef and heavy lamb, used principally by hotels, restaurants and institutions, is reported from California, due partly to a big stock of lambs on feed in the Imperial Valley. Storage holdings of pork are above the five-year average, lard has been down and hides are dull also, indicating that shoe manufacturers possibly are catching up on their supplies.

## Building Materials

Electric power curtailments in California may diminish cement output and thus quickly eat up the small amount of storage the mills have been able to build up through the winter. On the other hand, continuance of the drought conditions may slow up business in general and cause a slackening in construction demand.

Pipe is still being quoted for September delivery. Interior tile supply is catching up a bit and exterior tile may ease up by the last quarter of the year. California's ceramic tile production in 1947 reached a record high of 17,848,480 sq. ft., according to Verne C. Boget, West Coast advisory committee member of the Tile Council of America. California manufacturers added about 30 per cent more colors to their lines over 1946.

### CEMENT

*(In thousands of bbls.; from U. S. Bureau of Mines)*

| | —California— | | Oregon - Wash. | | Colo.-Wyom. Mont. Utah - Idaho | |
|---|---|---|---|---|---|---|
| | 1948 | 1947 | 1946 | 1947 | 1946 | 1947 |
| July | 1,690 | 1,899 | 504 | 563 | 391 | 396 |
| Aug. | 1,668 | 1,949 | 495 | 585 | 398 | 433 |
| Sept. | 704 | 643 | 370 | 332 | 135 | 138 |
| Oct. | 487 | 517 | 340 | 353 | 123 | 118 |
| Nov. | 624 | 581 | 367 | 400 | 144 | 132 |
| Dec. | 645 | 596 | 453 | 564 | 223 | 177 |

### STRUCTURAL CLAY PRODUCTS

| | UNGLAZED BRICK (in thousands of standard brick) | | UNGLAZED STRUCTURAL TILE (short tons) | | VITRIFIED CLAY SEWER PIPE (short tons) | |
|---|---|---|---|---|---|---|
| | Mountain | Pacific | Mountain | Pacific | Mountain | Pacific |
| July | 13,740 | 29,098 | 2,325 | 3,492 | 2,053 | 11,776 |
| August | 14,807 | 31,623 | 3,750 | 3,342 | 1,983 | 13,784 |
| Sept. | 12,168 | 28,267 | 3,814 | 3,599 | 1,830 | 13,501 |
| Oct. | *9,701 | 23,160 | 2,426 | 3,066 | 2,575 | 12,119 |
| Nov. | *9,701 | 28,983 | 2,745 | 2,632 | 2,066 | 13,175 |
| Dec. | *7,919 | 12,881 | 1,797 | 2,213 | 1,869 | 12,506 |

*Includes Colorado.

### ASPHALT ROOFING

(Ariz., Calif., Idaho, Nev., Ore., Utah, Wash.)

| | ASPHALT ROOFING (Sales squares) | SATURATED FELTS (Tons of 2000 lbs.) |
|---|---|---|
| July | 725,892 | 5,513 |
| August | 775,095 | .... |
| September | 862,859 | .... |
| October | 962,678 | 6,845 |
| November | 843,974 | 6,479 |
| December | 839,568 | 7,667 |

### TRAILER COACHES

*Housing types only. From Bureau of the Census In number of units—California only.*

| 1947 | Production | Shipments | Value of Shipments |
|---|---|---|---|
| July | 1,314 | 1,281 | 1,668,163 |
| August | 1,525 | 1,261 | 1,668,023 |
| September | 1,431 | 1,421 | 1,952,033 |
| October | 1,523 | 1,491 | 2,105,866 |
| November | 1,220 | 1,164 | 1,726,451 |
| December | 1,069 | 1,008 | 1,464,909 |

### WHEAT FLOUR

*(In thousands of sacks; from Bureau of the Census)*

| | Ore.-Wash. | Montana | Utah | Colorado | California | Total |
|---|---|---|---|---|---|---|
| July | 1,602 | 356 | 293 | 458 | 445 | 3,154 |
| August | 1,613 | 362 | 317 | 467 | 368 | 3,127 |
| September | 1,498 | 352 | 327 | 462 | 321 | 2,960 |
| October | 1,760 | 336 | 322 | 484 | 447 | 3,349 |
| November | 1,583 | 311 | 281 | 446 | 385 | 3,006 |
| December | 1,446 | 282 | 272 | 481 | 364 | 2,845 |

# Fruehaufs Extend Assembly Line Chain!

Strength of Fruehauf Trailer bodies is such that a complete electric crane is installed for handling automobile engines without the use of any additional supports to roof or sides.

## *Stretch it over 3 States for Engine Reconditioners*

THE Ford Motor Company originated the chain line assembly of motor cars. Meyer & Welch, Inc., Los Angeles, reconditioners of Ford, Lincoln and Mercury engines and parts, have applied the chain line principle to distribution. By means of Fruehauf Trailers and Ford tractors they supply replacements to authorized dealers throughout California, Arizona and Nevada.

Except for occasional shipments by common carriers, Meyer & Welch depend exclusively upon their ten Fruehauf Trailers to deliver *monthly*: 1,800 reconditioned engines, 16,000 reconditioned brake shoes, 15,000 clutches, 10,000 distributors, 6,000 carburetors and other thousands of small parts. In addition, their Truck-Trailers pick up exchange blocks and parts and haul them to the Los Angeles plant, thereby making work for 400 employees.

The Fruehaufs are operated on the shuttle system—loaded units on the road while empties are loading or unloading. The tractors work all the time—it's the assembly line chain *over the road* as well as in the factory.

When a firm such as Meyer & Welch, Inc., automotive specialists, fully competent to judge mechanical features, quality of materials and workmanship, select Fruehauf Trailers it should mean something to you. Theirs is only one of hundreds of businesses that have learned the efficiency and economy of Trailer hauling.

*World's Largest Builders of Truck-Trailers*

**FRUEHAUF TRAILER COMPANY**

*Western Manufacturing Plant, Los Angeles*

SALES AND SERVICE BRANCHES — LOS ANGELES
SAN FRANCISCO • SACRAMENTO • PORTLAND
SEATTLE • EL PASO • PHOENIX • SAN DIEGO
FRESNO • SPOKANE • BILLINGS • DENVER
SALT LAKE CITY

"ENGINEERED TRANSPORTATION"

PLAIN HORSE SENSE — YOU CAN PULL FAR MORE THAN YOU CAN CARRY!

**Fruehauf Trailers**

## Apparel

Psychological effect of recent commodity market breaks has been to intensify the attitude of caution which has prevailed in the apparel trades. Paradoxically, business continues to hold up better than was generally expected. Mid-winter trade shows drew unprecedented numbers of buyers to the West and contrary to rule, more are continuing to come and make post-exhibition purchases. One reason, of course, is the hand-to-mouth buying that has been practiced generally for the past two years, but another may be the growing realization that the West's garment industry now has far more to offer than sportswear alone.

Some manufacturers who have brought out new and finer lines to sell at somewhat higher prices have met discouraging response. Growing consumer resistance is so generally felt that the industry is seeking new shortcuts to avoid passing on rising costs to the buyer. Experts are being consulted, plant layouts being remodelled, production-line efficiency sought.

In men's clothing, price rises averaging about $2.50 per suit have been necessary through increased cost of fabric. This merchandise is just beginning to reach the retail level and its reception will be a good barometer of future markets.

**APPAREL**

*(In thousands of dollars)*

**Total Women's, Misses' & Juniors' Outerwear**

| | Los Angeles | San Francisco |
|---|---|---|
| April | 7,118 | 1,721 |
| May | 4,505 | 1,731 |
| June | 4,188 | 1,383 |
| July, August, September | 23,245 | 6,699 |

| | Overalls Men's (thousands of dozens) California | Men's Wool Work & Dress Trousers (thousands of units) California |
|---|---|---|
| May | 24.8 | 103.3 |
| June | 27.4 | 95.1 |
| July | 16.7 | 87.2 |
| August | 22.1 | 110.6 |
| September | 26.1 | 102.2 |
| October | 29.2 | 128.3 |

## Canning and Packing

Oregon and Washington's fruit and vegetable pack for 1947, as reported by Northwest Canners Association, was about 17.4 per cent below 1946. Decrease in the fruit pack was larger than for vegetables, but the berry pack ran contrary to the trend and was almost doubled in 1947. As the growing season gets under way, Northwest packers are in somewhat of a quandary as regards marketing the 1948 pack, but generally are in good condition as regards carryover. The principal exception is prunes, and to a lesser extent, pears.

Detailed pack and carryover figures are as follows:

**FRUITS (No. 2½ can basis)**

| | 1946 | 1947 | Stocks on hand Feb. 1, 1948 |
|---|---|---|---|
| Apples | 425,935 | 230,184 | 320,221 |
| Apple Sauce | 154,428 | 62,277 | 59,232 |
| Apricots | 300,098 | 141,437 | 63,564 |
| Cherries— | | | |
| Light sweet | 573,109 | 94,810 | 70,274 |
| Dark sweet | 511,428 | 149,253 | |
| Red sour, pitted | 53,405 | 32,171 | |
| Pears | 3,929,553 | 4,162,942 | 1,400,166 |
| Peaches, free | 752,846 | 1,028,340 | 394,442 |
| Purple plums | 3,450,447 | 1,816,116 | 1,378,596 |
| Plums, other | 8,902 | 8,185 | |
| Other fruits | 131,462 | 10,494 | |
| Total | 10,291,613 | 7,732,209 | |

**BERRIES (No. 2½ can basis)**

| | 1946 | 1947 |
|---|---|---|
| Blackberries | 33,904 | 134,504 |
| Boysenberries | 25,195 | 119,969 |
| Gooseberries | 8,826 | 16,109 |
| Loganberries | 25,854 | 35,684 |
| Raspberries, red | 20,670 | 29,620 |
| Raspberries, black | ..... | 51,396 |
| Strawberries | 3,228 | 5,262 |
| Youngberries | 15,308 | 10,112 |
| Other berries | 1,708 | 386 |
| Total | 185,819 | 351,196 |

**VEGETABLES (No. 2 can basis)**

| | 1946 | 1947 |
|---|---|---|
| Asparagus | 217,905 | 228,901 |
| Beans, green-wax | 2,491,720 | 2,845,917 |
| Beets | 1,176,888 | 600,660 |
| Carrots | 1,045,970 | 268,709 |
| Corn | 1,209,505 | 1,656,599 |
| Peas | 8,107,302 | 6,953,746 |
| Pumpkin | 303,067 | 405,379 |
| Spinach | 159,795 | ..... |
| Tomatoes & juices | 523,815 | 111,785 |
| Misc. vegetables | 310,276 | 350,834 |
| Total | 15,547,474 | 13,422,530 |

California canned fruit and vegetable stocks as of Feb. 1, 1948, are reported by the Canners League of California as follows:

**FRUITS (No. 2½ can basis)**

| | |
|---|---|
| Apricots | 1,166,884 cases |
| Cherries | 9,016 " |
| Pears | 462,723 " |
| Free Peaches | 495,910 " |
| Cling Peaches | 3,989,737 " |
| Fruits for Salad | 59,703 " |
| Fruit Cocktail | 1,904,217 " |
| Mixed fruits | 181,589 " |

**VEGETABLES (actual cases)**

| | |
|---|---|
| Round tomatoes | 3,025,364 " |
| Italian tomatoes | 80,157 " |
| Tomato juice | 4,909,228 " |

Utah canners are reported to be in good shape except for a large carryover of peas. California contract acreage for spring spinach estimated at 5,145 acres intended. Actual harvested acreage 1947 was 4,881.

California's frozen foods pack for 1947 is reported by the Western Frozen Foods Processors Association as follows, with comparative figures for 1946:

**FRUITS**

| | 1946 (pounds) | 1947 (pounds) | |
|---|---|---|---|
| Apples & Applesauce | 26,817,991 | 1,592,406 | |
| Apricots | 33,882,158 | 3,598,279 | |
| Bushberries (Others & Unclassified | 152,792 | 169,561) | |
| Blackberries | 190,551 | 6,315) | |
| Boysenberries | 4,133,965 | 8,341,642) | 9,726,786 |
| Loganberries | 656,223 | 449,035) | |
| Youngberries | 1,522,020 | 760,233) | |
| Strawberries | 3,916,119 | 8,306,041 | |
| Sweet Cherries | 5,227,190 | 320,492 | |
| Nectarines | 885,151 | 156,517 | |
| Peaches, Clingstone | 5,383,898 | 582,897 | |
| Peaches, Freestone | 21,130,000 | 4,136,521 | |
| Plums and Prunes | 2,680,966 | 204,908 | |
| Miscellaneous | 4,904,792† | 938,156‡ | |
| Total Fruits | 111,483,816 | 29,563,003 | |

NOTE: Fruit Purees included in Fruits.

†Citrus Juice (incomplete), Figs, Grapes, Mixed Fruit, and Pears.

‡Banana Puree, Citrus Juice (incomplete), Citrus Peel, Currants, Figs, Grapes, Melon Balls, Mixed Fruit, & Oranges.

**VEGETABLES**

| | 1946 (pounds) | 1947 (pounds) |
|---|---|---|
| Asparagus | 10,827,736 | 1,108,257 |
| Beans, Baby Lima | 4,259,961 | 3,543,033 |
| Beans, Fordhook Lima | 16,202,414 | 31,937,578 |
| Beans, Snap and Wax | 3,587,310 | 2,313,985 |
| Broccoli | 17,052,922 | 6,051,119 |
| Brussels Sprouts | 12,730,933 | 4,177,970 |
| Cauliflower | 8,406,740 | 2,951,174 |
| Peas | 2,964,819 | 3,302,216 |
| Spinach | 10,070,283 | 1,935,111 |
| Miscellaneous | 9,106,211† | 686,270‡ |
| Total Vegetables | 95,209,329 | 58,006,713 |
| TOTAL PACK | 206,693,145 | 87,569,716 |

†Carrots, Corn-on-Cob, Cut Corn, Mixed Vegetables, Blackeye Peas, Peas and Carrots, Pumpkin and Squash, Rhubarb, and Tomatoes.

‡Celery, Corn-on-Cob, Rhubarb, and Tomato Juice.

## Chemicals

Uncertainty of the agricultural situation in California because of drouth has confused the agricultural chemicals picture also. DDT and other materials are in good supply now, but some predictions are that West Coast demand will be 25 per cent below supply this summer. On the other hand, crop curtailment might change the situation materially. Chlorine is reported to have loosened up somewhat, but the market is still tight.

**Oversize** *U·S·S steel structural members form the "bones" for Pacific Telephone's new 15-story building in Oakland, California. Delicate communications gear needs the protection against shock that steel with its extra toughness can give.*

# Steel—Framework for the Expanding West

Steel's passing the test in the West. Steel's fabricating speed helps the West build—fast. The strength of steel helps the West build—permanently.

All over the West in jobs large and small, steel by Columbia is being put to profitable use. The great mills of Columbia are turning out record amounts of the steel the West grows on. And, as a member of United States Steel, Columbia serves the West by combining its resources with those of the Industrial Family that Serves the Nation.

For information on any U·S·S steel product, address the Columbia Steel Company office nearest you.

**Only STEEL can give you all 7 of these structural advantages**

Extra toughness and shock resistance—Incombustibility—High strength-weight ratio—Highest modulus of elasticity—Versatility of application—Great durability —Ultimate economy

*BUILDING THE WEST . . . FOR TODAY . . . FOR THE FUTURE*

## Columbia Steel Company

*San Francisco • Los Angeles • Portland • Seattle • Salt Lake City*

*Pacific Coast Distributors for*
AMERICAN BRIDGE COMPANY • AMERICAN STEEL & WIRE COMPANY
NATIONAL TUBE COMPANY • CARNEGIE-ILLINOIS STEEL CORPORATION
TENNESSEE COAL, IRON & RAILROAD COMPANY
United States Steel Export Company, New York

USS STEEL UNITED STATES STEEL

## UNITED STATES STEEL

# Spotlight on the NEWS

WESTERN INDUSTRY
FOR APRIL, 1948

VOLUME XIII NUMBER 4

Insurance against monetary loss from strikes, through a reciprocal or inter-insurance deal among employers, is the latest wrinkle to come out of Los Angeles. You pay a premium, for example, of $525 to $750 a year per $100 indemnification for each day of involuntary total or partial suspension of business caused solely by labor disturbances.

You get this benefit provided you avoid the labor disturbance if possible, minimize it if it has occurred and resume full operations as promptly as possible.

All hot and bothered for fear it will mean financing of strikebreaking, the AFL state officials have filed a protest with the state insurance commission. But if unions can finance each others' strikes, what is there to prevent employers from doing likewise? Oh yes, it's an M&M deal, with Charlie McKeand hired to manage it.

### Retrieve Salmon Waste

The economics of being economical seem to point away from the current practice of Alaskan canneries to discard about one-third of the weight of each salmon and dump out to sea probably 100,000,000 pounds annually of heads, tails, fins and viscera containing proteins, amino acids, enzymes, hormones and other pharmaceutical and chemical products.

Head, collar and tail sections contain a substantial amount of protein, the roe is a good source of histone and the milt has a high percentage of protamine, while other proteins with special properties are found in the fins, liver, heart and digestive tract, says the first coordinated study of utilizing fish waste. It is being carried on at the government's Fishery Technological Laboratory at Seattle by the Department of Commerce's Office of Technical Services and the Alaska Fisheries Experimental Commission.

Practical difficulties due to the isolated location of the canneries and the extremely short season with a glut at the 10-day peak stand in the way. Yet by slightly altering the "iron chink" used to butcher the fish so as to separate head, collar and tails from the rest of the waste the problem of sorting could be solved, the scientists believe, and an operation designed to prepare a fat-free, semi-purified protein and simultaneously recover the valuable fat fractions of salmon eggs seems to offer good economic possibilities.

Finding some suitable preservation technique whereby processing can be carried out over a long period of time, thus handling the huge glut of waste, apparently is the key to be found by further research.

### Where, Oh Where?

Where is Colorado Fuel & Iron going to get another roll designer when the present 69-year-old holder of this job at Pueblo retires? That is the question William Jacobson, superintendent of the CF&I rolling mill, would like answered.

There are only five or six of them left in the country, he reports, and designing is an art that takes years to acquire. Keeping track simultaneously of 30 rails so that they go through all the processes properly with only a few of them ever having to be thrown back as scrap is one of the tasks with which the roll designer is burdened.

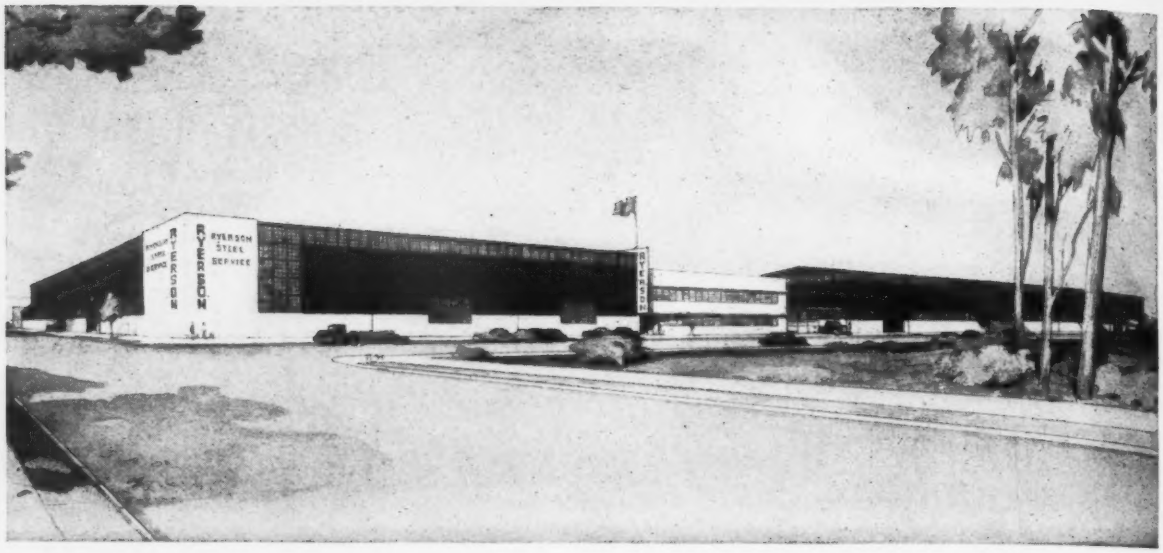
With all the chambers in the labor situation in the last few years, younger men who have their eyes focused on becoming roll designers don't seem to be had. Perhaps they will have to go the way of buggy whip designers, but the steel business, for some reason or other, isn't being outmoded quite as fast as the old gray mare.

### Research Turns West

Research in the West is in its infancy, so President Wilson Compton of Washington State College (brother of President Karl Compton of M.I.T.) and various others have been saying without contradiction. But the enticing of Dr. J. E. Hobson away from the executive directorship of Armour Research Foundation at Illinois Institute of Technology to head up the two-year-old Stanford Research Institute sounds as though researchers are beginning to feel that Westward pull, along with population, industry and finance.

Perhaps acquiring his Ph.D. at Caltech back in 1935 may have helped sell Dr. Hobson on the West. But the report that he came to Stanford despite the fact that President Henry T. Heald of Illinois Tech offered him the executive vice-presidency of that institution if he would stay is a pretty fair sign that industry and education could well unroll the red carpet now and then in appreciation of the arrival of such topflight people in the West.

Meanwhile the Stanford institute has not been doing badly for such a youngster. Under direction of Prescott R. Lloyd, formerly in charge of Libby, McNeill & Libby's Pacific Coast laboratory, it has come up with a food acceptance laboratory which is the apparent answer to the historic by-guess-and-by-gosh methods of testing foods, such as the sample cuttings of canning associations where the white enamel dish, the spoon, the midget paper cup and the predilections of a committee of cannery superintendents constitute the yardsticks of quality. Instead, there will be a carefully selected panel of 20 women, tested for taste sensitivity and representing a cross-section of the population who will grade samples according to fixed factors of odor, color, flavor, texture and appearance. A few months hence, a foundation of accurate reactions will point the way to accurate standards of consumer acceptance.




*Announcing*

# Ryerson Steel-Service for San Francisco Bay Area

We are pleased to announce the opening of a new steel-service plant at Emeryville, California, just across the bay from San Francisco. This new unit in the nation-wide Ryerson network is the largest, most completely equipped steel-service plant in the San Francisco area. Its strategic location near the eastern approach to the Bay Bridge enables us to give fast service to the entire industrial market of San Francisco and northern California.

We have installed the most modern cutting and handling facilities for quick, dependable service and fair stocks of bars, shapes, plates, sheets, tubing and other steels are on hand. But tonnage is still comparatively small due to the great demand, and all sizes are not available. This situation naturally limits the scope of our service. However, you may be sure that we will build up our inventories as soon as possible.

Fortunately, we have a strong, experienced steel-service organization here in our San Francisco plant, and stand ready to cooperate closely with you whenever you call.

Joseph T. Ryerson & Son, Inc., 65th and Hollis Streets, Emeryville. Mail Address: Box 188, Emeryville, California. Phones: Piedmont 5-8450; from San Francisco only—no inter-city charge—Enterprise 10176.

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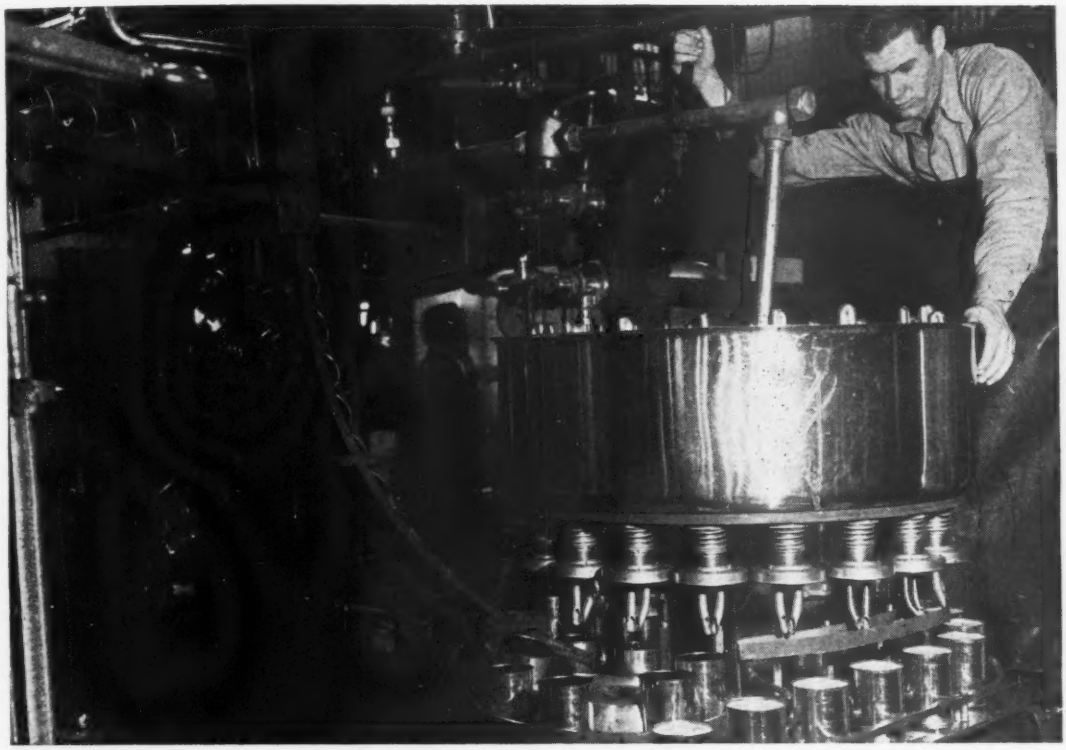
# RYERSON STEEL

## PICTURE OF THE MONTH



**THE INDUSTRIALIZED WEST . . .** *Canned orange, lemon and grapefruit juices are an important by-product of southern California's citrus growing industry. Anaheim is the center of canning operations. Scene above shows orange juice after being given flash sterilization being filled into cans at the rate of 165 per minute at Caltone Corporation's plant.*

# Dawn of United Effort to Build Ocean Commerce for the West

RAILROADS, steamship lines, airlines, truckers and terminal operators have gotten together for the first time in history in a move to reverse the downward trend of Pacific Coast exports and build more tonnage for Coast ports, thereby encouraging the growth of Western industries.

A Western Transportation Conference was called in San Francisco February 20, under sponsorship of the California State Chamber of Commerce. Here many of the problems facing West Coast ports were aired, such as accessorial charges and labor difficulties, which have helped to divert much tonnage to and from the Far East to Gulf and Atlantic ports.

Out of the meeting came the formation of an executive committee representing enough top brass to make policy decisions binding their own companies. Avoiding (for the present at least) such pitfalls as rates and labor problems, the committee was directed by the Conference to devote its first attention to:

a. Means and methods of obtaining for Pacific Coast ports their fair and reasonable share of relief, stockpiling and commercial cargoes outward bound, and also import cargo.

b. Study of the effect of accessorial charges upon import-export traffic.

c. Advise shippers of the advantages of shipping foreign traffic via Pacific Coast ports.

M. B. Silberberg, Los Angeles attorney who has been active in freight traffic work for the California State Chamber of Commerce, is chairman of the executive committee. Other members include:

Puget Sound: A. R. Lintner, president, American Mail Line, Seattle; Ed Soergel, vice-presi-

(Continued from page 37)

dent, traffic, Chicago, Milwaukee, St. Paul & Pacific Railroad, Seattle; Col. W. D. Lamport, general manager Port of Seattle.

Columbia River: Hillman Lueddemann, vice-president, Pope & Talbot, Portland, Ore.; A. J. Seitz, vice-president, traffic, Union Pacific Railroad; George D. LaRoche, general manager, Commission of Public Docks, Portland.

Northern California: Maitland S. Pennington, vice-president, Pacific Transport Lines; W. W. Hale, vice-president, freight traffic, Southern Pacific Co.; Charles Howard, Howard Terminal, Oakland.

Southern California: S. S. Harlow, American-Hawaiian Steamship Co.; J. J. Grogan, vice-president, traffic, Santa Fe Railway Co.; Arthur Eldridge, general manager, Los Angeles Harbor Department.

Trucks: Leland James, president, Consolidated Freightways, Portland; Joseph Robertson Drayage Co., San Francisco.

Airlines: James L. Murphy, Jr., assistant to president, United Air Lines, San Francisco.

Freight forwarders: J. E. Lowden, J. E. Lowden Co., San Francisco.

Rates are a touchy subject on which the Conference might well have foundered at the outset, just as other groups have broken up under the pressure of widely divergent interests. But this new organization was held together by avoiding the controversies and sticking to matters of common interest.

# A TOUGH COMPETITIVE PICTURE

## COMPARISON OF RATES ON SELECTED COMMODITIES FROM INTERIOR UNITED STATES POINTS TO MANILA, P. I.

*(Rates per ton)*

### AGRICULTURAL IMPLEMENTS FROM SO. MILWAUKEE, WIS.

| | | Via San Francisco | | | Via New York | Via New Orleans | |
|---|---|---|---|---|---|---|---|
| | Rate | Absorption | | Net Rate | | Rail | Rail-Barge |
| Rail | $26.88 | | | $26.88 | $20.16 | $10.80 | $9.36 |
| Car Unloading | 1.43 | RR | $1.38 | .05 | | | |
| Wharfage | .35 | SS<br>RR | .17½<br>.07½ | .10 | | | |
| Ocean | 18.00 | | | 18.00 | 27.00 | 27.00 | 27.00 |
| | | | | $45.03 | $47.16 | $37.80 | $36.36 |

### PASSENGER AUTOMOBILES BOXED FROM DETROIT

| | | Via San Francisco | | | Via New York | Via New Orleans | |
|---|---|---|---|---|---|---|---|
| | Rate | Absorption | | Net Rate | | Rail | Rail-Barge |
| Rail | $96.96 | | | $96.96 | $28.56 | $20.40 | $18.00 |
| Car Unloading | *2.00 | RR | $1.12 | .88 | | | |
| Wharfage | .35 | SS<br>RR | .17½<br>.07½ | .10 | | | |
| Ocean | 15.50 | | | 15.50 | 22.25 | 22.25 | 22.25 |
| | | | | $113.44 | $50.81 | $42.65 | $40.25 |

*Minimum Rate—Actual Rate on Cost Plus Basis.

### AUTOMOBILES, FREIGHT, BOXED FROM SOUTH BEND, IND.

| | | Via San Francisco | | | Via New York | Via New Orleans | |
|---|---|---|---|---|---|---|---|
| | Rate | Absorption | | Net Rate | | Rail | Rail-Barge |
| Rail | $56.64 | | | $56.64 | $37.20 | $24.96 | $16.32 |
| Car Unloading | *2.00 | RR | $1.12 | .88 | | | |
| Wharfage | .35 | SS<br>RR | .17½<br>.07½ | .10 | | | |
| Ocean | 15.50 | | | 15.50 | 22.25 | 22.25 | 22.25 |
| | | | | $73.12 | $59.45 | $47.21 | $38.57 |

*Minimum Rate—Actual Rate on Cost Plus Basis.

### TRACTORS, BOXED OR CRATED, FROM PEORIA, ILLINOIS

| | | Via San Francisco | | | Via New York | Via New Orleans | |
|---|---|---|---|---|---|---|---|
| | Rate | Absorption | | Net Rate | | Rail | Rail-Barge |
| Rail | $26.88 | | | $26.88 | $20.40 | $18.72 | $9.12 |
| Car Unloading | *1.43 | RR | .59 | .84 | | | |
| Wharfage | .35 | SS<br>RR | .17½<br>.07½ | .10 | | | |
| Ocean | 18.25 | | | 18.25 | 29.75 | 29.75 | 29.75 |
| | | | | $46.07 | $50.15 | $48.47 | $38.87 |

*Minimum Rate—Actual Rate on Cost Plus Basis.

### CANNED GOODS, FROM INDIANAPOLIS, IND.

| | | Via San Francisco | | | Via New York | Via New Orleans | |
|---|---|---|---|---|---|---|---|
| | Rate | Absorption | | Net Rate | | Rail | Rail-Barge |
| Rail | $24.24 | | | $24.24 | $13.20 | $12.48 | $11.28 |
| Car Unloading | .95 | RR | .59 | .36 | | | |
| Wharfage | .35 | SS<br>RR | .17½<br>.07½ | .10 | | | |
| Ocean | 21.50 | | | 21.50 | 29.75 | 29.75 | 29.75 |
| | | | | $46.20 | $42.95 | $42.23 | $41.03 |

### RATES ON CANNED GOODS ORIGINATING LOCALLY FROM LOADING PORTS TO MANILA, P. I.

| | From San Francisco | From New York | From New Orleans |
|---|---|---|---|
| Wharfage | $ .35 | | $ .15 |
| Handling | .80 | | |
| Ocean | 27.00 | $29.75 | 29.75 |
| | $28.15 | $29.75 | $29.90 |

*(Compiled by California State Board of Harbor Commissioners)*

Although most of the publicity has been given to accessorial charges and labor troubles, which have made it uncertain for shippers to know what their shipments would cost them in advance or whether the cargoes would move at all, much deeper problems are involved. Outstanding are the drives for business put on by ports elsewhere and the fact that an overwhelming proportion of the tonnage moving today is government-controlled, which means that it is Washington-controlled with but little interest in the West's stake.

Underneath the calm surface of a government supposedly relinquishing most of its wartime domination of business lies a network of federal agencies whose very names are largely unknown to the majority of business men, but they control the movement of a vast amount of cargo to and from the American forces still far flung in the Orient and Europe, and relief shipments such as coal and grain which might well be drawn in large measure from the Pacific Northwest and Utah, but instead are being built up elsewhere in the country.

Practically none of these agencies have representation on the West Coast, and a striking example is the fact that General MacArthur has a representative in New York, but none on the Pacific Coast, 3,000 miles nearer to the scene of his operations in Japan.

Another factor with highly dangerous potentialities for the West is the fact that import and export licenses must be obtained from the Office of International Trade of the Department of Commerce. Thus the O.I.T., directed from Washington, decides who may engage in foreign trade, and has the authority to throw opportunities in whatever direction its guiding geniuses back in Washington may decide. Incidentally, the O.I.T. has no Pacific Coast branch office, so West Coast traders are at a disadvantage in obtaining licenses.

That the Pacific ports are no longer the "Gateway to the Orient" is shown strikingly by the fact that their percentage of the total U. S. dry cargo exports to the Orient has declined from 69.8 per cent in 1924 to 37.2 per cent in 1947, while the Atlantic ports rose from 22.3 per cent to 31.4, and Gulf ports made an astonishing climb from 7.9 per cent to 31.9 per cent.

Intercoastal traffic also fell from 6,978,000 tons in 1939 to 2,600,000 in 1947, while coastwise movement slipped from 3,738,000 tons to 325,000 tons.

Specific export losses include a decline in the proportion of cotton for the Orient from 34.1 per cent in 1938 to 11.3 per cent in 1947, with thousands of bales of California cotton being shipped to Houston for export. Although 9.6 per cent of the natural rubber imports are consumed on the Pacific Coast, 7 per cent comes here overland from the east for processing in Coast factories.

Since coal requirements of China and Japan in the next few years are likely to be 2,500,000 tons annually, some efforts

have been made to develop tonnage out of Utah, because it is much nearer than other American sources, but without much success so far.

About 90 per cent of the Pacific Coast export tonnage comes from the West Slope, with lumber, grain, petroleum and petroleum products predominating. The remaining 10 per cent, largely manufactured goods, comes overland, but with the growth of manufacturing in the West, the Western area has an opportunity to develop an export trade of volume sufficient to be an important factor in industrial production.

Although the recent conference carefully avoided digging into the labor problem, Thomas Coakley, chairman of the California Board of Harbor Commissioners and president of the Pacific Coast Ass'n of Port Authorities, proposed that representatives of labor be called in to help work out the problem of developing more business for West Coast ports.

Accessorial charges are absorbed by the carriers in Atlantic and Gulf shipments, so the exporter knows his total cost in advance. But in the West they are tacked on afterwards, leaving the exporter uncertain. The table on page 38 gives concrete examples of how this works to the disadvantage of the West. Railroads and steamship lines have absorbed part of these costs, but there is still an unabsorbed margin which may be disposed of now that all parties have agreed something should be done about it.

## HOW THE WEST LOSES OUT, THOUGH DISTANCE IS LESS

**Comparative Freight Rates on Cement From California, Atlantic and Gulf Ports and Europe to Pacific Ocean Countries, Republic of Panama, and Panama Canal**

**RATES IN CENTS PER TON 2000 LBS. AND EUROPEAN RATES CONVERTED TO U. S. CURRENCY**

| Country | From San Francisco | | From New York | | New Orleans | | Europe |
|---|---|---|---|---|---|---|---|
| Manila | Rate 2240# equals | —$19.50 | Per 2240# equals | —$19.50 | 2240# equals | —$19.50 | |
| Philippine Islands | Rate 2000# | $17.32 | Rate 2000# | $17.32 | 2000# | —$17.32 | |
| | *Terminal Charges* | | | | | | |
| | Wharfage or state toll | .35 | | ——— | | .15 | |
| | Handling chg. | .80 | | ——— | | ——— | |
| | Car unloading chg. | .71 | | ——— | | .59 | |
| Total Rate & Chgs. | | $19.18 | | $17.32 | | $18.06 | $11.18 1/ |
| Sydney, Australia and Auckland, New Zealand | Per Ton 2000# | $14.00 | Per 2240# equals | $15.50 | 2240# equals | $15.50 | |
| | | | Per 2000# | $13.76 | 2000# | $13.76 | |
| | *Terminal Charges* | 1.86 | | ——— | | .74 | |
| Total Rate & Chgs. | | $15.86 | | $13.76 | | $14.50 | $10.13 2/ |
| Netherland, Indies | Per Ton 2000# | $17.75 | | $20.25 | | $20.25 | |
| | *Terminal Charges* | 1.86 | | ——— | | .74 | |
| Total Rate & Chgs. | | $19.61 | | $20.25 | | $20.99 | $13.52 3/ |
| Strait Settlements Main Ports Singapore | | $17.75 | | $17.75 | | $17.75 | |
| | *Terminal Charges* | 1.86 | | | | .74 | |
| Total Rate & Chgs. | | $19.61 | | $17.75 | | $18.49 | $13.52 4/ |
| Canal Zone (Balboa) (Republic Panama) (Panama City) Colon Cristobal | all destinations | $11.00 | $9.00 Balboa<br>$9.00 Panama City<br>$8.00 Colon<br>$8.00 Cristobal | | $9.00 Balboa<br>$9.00 Panama City<br>$8.00 Colon<br>$8.00 Cristobal | | |
| | *Terminal Charges* (Handling chg. 75c ton, other terminal chgs. same as to Manila) | $1.81 | | ——— | | .74 | |
| Total Rate & Chgs. | | $12.81 | $9.00 Balboa<br>9.00 Panama City<br>8.00 Colon<br>8.00 Cristobal | | $9.74 Balboa<br>9.74 Panama City<br>8.74 Colon<br>8.74 Cristobal | | $10.28<br>10.28<br>8.49<br>8.49 5/ |

1/ Rate 70 shillings per 1000 kilos less 1½ per cent less 9½ rebate equals $11.18 ton, 2000 lbs.—no loading charges.

2/ To Sydney—60 shillings per 1016 kilos plus 5 per cent primage less 10 per cent deferred rebate. No loading charges equals $10.13 per 2000 lbs.

3/ Rate 45 Netherland Guilders per 1000 kilos less 10 per cent deferred rebate equals rate per ton 2000 lbs.—$13.52.

4/ Same rate as Netherlands, East Indies.

5/ Rate 47/6 shillings per 1000 kilos to Colon, Cristobal equals $8.49 per 2000#.
Rate 57/6 shillings per 1000 kilos to Panama City equals $10.28 per ton, 2000#.

*(Compiled by Pacific Coast Cement Institute)*

## AN OPEN LETTER ABOUT FREIGHT RATES TO THE WESTERN RAILROADS

By MORRIS PENDLETON, Chairman
Freight Traffic Committee
California Manufacturers Assn.

THE West is an industrial community in which both manufacturers and transport agencies have a community of interest and responsibility. Our industrial progress requires, and in fact, demands that the products of our factories be given every opportunity to reach all American markets competitively with the products of other sections of the country. Our production capacity and maximum efficiency depend upon our ability to hold and expand all of our market areas.

Freight rate increases on a flat percentage basis are already restricting those areas. It will restrict them even further as this increase formula is expanded and as our competition becomes more intensified with the balance between supply and demand and its inevitable influence upon the general price structure.

The California Manufacturers Association has made it clear to Western railroads that we favor non-discriminatory increases in railroad rates where needed to protect the solvency of such railroads. Yet we cannot subscribe to their percentage method of increasing transportation charges borne by Western industry, if justified only by the revenue needs of the railroads in other parts of the country.

We have objected to the method in any event because of its disregard for long established competitive relationships, with particular discrimination against the West because of our extreme distances, not only from sources of many of our raw materials and semi-finished parts, but also from the most populated consuming areas of the country.

It is our preference to work these matters out directly, through frank and mutual discussions between manufacturers and the Western railroads. While I feel very strongly that the carriers have more in common with Western industry than with carriers serving other parts of the country, we have not been given that opportunity.

Secondly, we feel that such issues should be resolved before the administrative agencies such as the Interstate Commerce Commission and the California Public Utilities Commission. We have told our story to those agencies as have individual manufacturers throughout California and the Pacific Coast. Consideration of our opposition in this regard has been disappointing thus far.

While I realize that such a controversial question cannot be settled through the medium of publicity, my purpose in making so complete a report is to enable as many as possible of the victims of such practices to at least have some knowledge of what is happening to them.

Western railroads appear satisfied that interim percentage increases already permitted constitute administrative acquiesence in their position that the entire increase formula applied for is justified.

I will also point to those interim decisions, but with considerably less pride. The ICC decision which granted the 10 per cent

**OPEN LETTER**—*(Continued from page 39)*

interim increase October 13, 1947, was handed down within a matter of days following the filing of the railroads' petition. Their decision which granted the second interim increase of 10 per cent was handed down before the end of December 1947, following the accumulation of thousands of pages of shipper testimony and transcript in opposition thereto, and the holding of many public hearings throughout the country, the last of which was not concluded until nearly the middle of December 1947.

Nor is there evidence that Western railroads have given cumulative consideration to the fact that the general rate levels between California and the Pacific Northwest have just been increased disproportionately as compared with other sections of the country. Increases in such rates varied percentage-wise up to 150 per cent and greater, above rates which were in effect a year and one-half and two years ago.

Some of the Western lines have justified their request for further increases in freight rates with such allegations as earnings for all railroads in the country representing 2.5 per cent return on their depreciated investment during the first nine months of 1947. They participated in the request for emergency consideration by the ICC and various state commissions, based upon increased cost of operations.

The significant facts are, that railroads in the Western district earned 3.86 per cent return on their property investment during the 12 months ending October 31, 1947, prior to any substantial benefits received from the 20 per cent interim increases in their freight rates which have already been permitted by the ICC and by some of the state commissions, including the California Public Utilities Commission.

Lines in the Western district experienced an increase in operating costs during the first 11 months of 1947, of 4.1 per cent above the corresponding period of 1946. Their net railway operating income, however, increased by $70,000,000 or 44.3 per cent greater than during the same period of 1946.

### Western Roads Fare Well

We are still talking about railroads as a group and substantially all of the lines serving the Pacific Coast have enjoyed earnings individually, far above the average earnings of all lines. One of these carriers, for example, experienced a net income during 1947 of approximately $35,500,000, equal to $9.41 per share.

So that there may be no misunderstanding of the position of the California Manufacturers Association, we will go along with a reasonable and non-prejudicial rate increase which may be justified by Western railroads specifically.

We agree with the policy of railroads in establishing maximum or ceiling increases for individual products, notably agricultural products for preservation of market relationships, and we continue to ask for the same method of rate increases on manufactured commodities as opposed to the flat percentage formula. But we still question the advisability of percentage increases and are convinced that they will have the effect of reducing rather than enhancing the revenue of Western carriers, because of the resultant lessening of market areas for California products.

We will adhere to this position just as the Western railroads seem determined to follow the course they have chosen. We think they are gambling too heavily on the outcome, even though there is some indication that they are proceeding with their eyes open. For example:

Mr. F. J. Gavin, president, Great Northern Railway, was quoted in a San Francisco newspaper on November 17, 1947, as expressing the hope that, "The railroads, in raising rates, would not price themselves out of the market." Also in the recent annual report by the ICC to Congress, there is reference to competition which the common carriers are facing with so-called private transportation. The Commission calls attention to the fact that such competition is already substantial and stated:

"This fact is of special import not only for carriers but also for smaller business enterprises. Decentralization or relocation of industries, and to an extent, of population . . . and diminution of tonnage and of revenue therefrom, are consequences when the price of transportation is forced upward by costs to a level which the traffic will not bear."

### "Less Complacency"

We have appealed to the railroads to exercise as much operational efficiency as have the manufacturers, including the lessening of their "complacency" in matters of featherbedding rules, which are more prevalent among railroads than in any other industry with the possible exception of the building trades. The following observation was made by John S. Bugas, vice-president and director of industrial relations, Ford Motor Company, Thursday, October 2, 1947, before the American Management Association at New York:

"The significant thing about this situation is the employees themselves do not approve of featherbedding. In a Gallup poll taken last year, only 23 per cent of the railway rank and file favored such practices, yet the railway brotherhood leadership does not seem to be aware of this sentiment on the part of its constituents and the constituents do nothing to bring it into line."

Industrial expansion of the West is inevitable and to the extent that more and more products are made in this area, more and more westbound tonnage will be lost to Western railroads, tonnage which has represented the movement of the same products from eastern sources. Unless such carriers or their competitors cooperate in the broadest distribution of Western products, they will find it increasing difficult to continue preferential treatment for agricultural and other products which will have to assume a greater share of the cost of long haul rail operations.

It therefore behooves the railroads of the West to become more cooperative and active partners in our Western industrial economy.

## JUSTICE FOR NON-FERROUS METALS

By O. W. TUCKWOOD
*General Traffic Manager*
*American Smelting & Refining Company*

BECAUSE the rate on non-ferrous ores and concentrates is fixed on a basis of graded actual valuation, these commodities now pay from 6% to 81% more freight than in 1945, solely as a result of metal price increases.

An ore concentrate having a given assay moved at one rate in 1945, but a shipment with the same assay paid a higher rate in 1947 entirely because of metal price increases. How can anyone tell you the commodity is different because its price has advanced?

The weighted average for lead ores and concentrates on 67 typical examples reflected an increase of $1.61 a ton, or 40%; for copper ores and concentrates it was $1.25 or 28%. When the ICC allowed the railroads a general 20% increase in the West, that percentage plus the effect of metal prices advances increased lead ore and concentrate rates a weighted average of $2.75 or 68%; yet iron ore, alumina and bauxite took the small increase of but 12c per ton.

Still further increases were sought by the railroads. They expected non-ferrous ores and concentrates to pay from 37% to 55% more than they expected to receive from any other commodity moving by rail freight; on iron ore they asked but 37c a ton more, but on non-ferrous ores and concentrates $4.29 to $4.66 per ton more, although it takes 41 tons of lead ore to produce a ton of pig lead but only two tons of iron ore to get a ton of pig iron.

I will never be satisfied until the first increase of Jan. 1, 1947, is rolled back to 12c a ton on ores and concentrates, the same as was accorded iron ore, bauxite and alumina in that proceeding, and on the non-ferrous metals and metal products corresponding to the iron and steel articles list a 20% increase subject to a maximum of 10c per 100 lbs., but not in excess of $2 per ton net or gross as rated in lieu of the flat 20% without maximum within Western territory and the 22½c without maximum for non-ferrous metals moving to eastern markets. Traffic executives of the other non-ferrous smelting and refining companies feel much the same as I do.

I believe the railroads should compute metal prices for copper, lead, zinc, silver and gold on a fixed price for the basis of determining the freight rate, and these fixed prices could well be the weighted average prices for the period from 1891 to 1947, inclusive, and that proven loss and damage claims should be paid on the basis of actual settlement value between smelter and shipper.

Don't let anyone tell you we are not paying our share of the railroad transportation burden. The average per car mile revenue for pig lead in 1945 was 91% greater than the average for all carload freight.

• Research engineer Arthur L. Mottet, of the Long-Bell Lumber Co., Longview, Wash., is pictured separating low-grade by-products.

# New Bark Products Open Up Outlets For Wood Wastes

RESEARCH programs to utilize the wastage in Western lumbering operations, begun in prewar years, are slowly but steadily expanding along several lines. Part of the work is being done by the Western Pine Association and the rest by the largest lumber firms, either in their own laboratories or through the facilities of the Institute of Paper Chemistry at Appleton, Wisconsin.

Among the items already developed for commercial use are bark by-products, such as insulation and felting material, soil mulch, wood flour. Most of these are mechanical developments, but chemical possibilities are beginning to become attractive.

Activities of the Western Pine Association research laboratory are being directed primarily toward the utilization of logging slash, which represents by far the greatest waste in modern logging and lumbering practices. Investigation of the possibilities of slash recovery and utilization is still in the early stages, and until more work has been accomplished no additional major research will be undertaken. A study in the possibilities for utilizing pine bark is on the laboratory agenda, but tagged as a future item.

Among the individual operators, Weyerhaeuser, Long-Bell and Crown-Zellerbach in the Pacific Northwest, and Pacific Lumber Co. and Hammond in California have done the largest amount of work.

Pacific Lumber Company were the first in the market with their redwood bark products, a field which was also entered last year by Weyerhaeuser with Douglas fir bark items. Pacific is also understood to be developing products of a chemical nature. Long-Bell Lumber Company have concentrated largely on developing the manufacture of refined wood items from low-grade lumber, in other words, the improvement of products and manufacturing methods rather than the test tube type of exploration.

Softwood insulation board from salvage wood is also being manufactured by Simpson Logging Co. at Shelton, Wash., at the rate of 300,000 sq. ft. a day. The material, known in the lumber industry as "small woods," consists of slabs, edgings, peeler cores and salvagable wood from the logging operations. Only the unsuitable small stuff such as knots, bark and rot remains to be fed to the boilers; in fact, oil is gradually being substituted for providing steam. Acoustical tile will also be put on the market shortly by Simpson.

Crown-Zellerbach have had a research laboratory at their Camas, Washington, plant for 12 years, but have not yet marketed any by-products from it, and Hammond Lumber Co. are putting into use again the prewar laboratory they had established at Eureka, California. Hammond's main production is in redwood, but as they sell their bark to Pacific Lumber, any by-products that they introduce will probably be along other lines.

Long-Bell recently announced the construction of a pilot plant for use of low-grade wood products in the manufacture of more refined wood items. It will be located at the millsite at Longview, Washington, where for several years they have had a milling operation to produce unpainted furniture for sale by a major distributor, and also window and door frames and industrial items. Findings of the research department will be carried into commercial scale experimentation in this new plant.

A wood flour recovery plant is being constructed at Long-Bell's operation at Weed, California. It will convert sander dust from the sash and door factory into wood flour for further refinement. The dust is used as a filler for plastics and as a base for linoleums.

At the present stage of development, it does not seem likely that small logging operations could afford the installation of bark processing equipment. A still greater problem to be faced is that of marketability of bark by-products, which only such large organizations as Pacific and Weyerhaeuser have attempted to solve.

While Long-Bell is amply able to undertake the job also, the availability of a nearby producer of kraft paper to whom slabs and bark from Long-Bell's mill at Longview are sold probably has had some effect on Long-Bell's development program.

As a matter of fact, the smaller operations are the only ones at which any considerable portion of unused timber scrap is burned to no purpose except disposal. Most of the larger mills, including the Weyerhaeuser mills—except the Longview plant, convert the slabs and bark either into hog fuel for consumption at the mill, or into mill slabs for sale as fuel in the nearby vicinity.

A few mills consider that bark is unsatisfactory as hog fuel, but it can be noted that at the Snoqualmie Falls Lumber Co., a Weyerhaeuser operation near Seattle, the last incinerator was torn down several months ago. Bark is going to the hog along with other scraps and slabs, and is being burned in the mill boilers to produce the steam and electric energy required to operate the plant and serve the surrounding vicinity.

Pacific Lumber Company's bark operations are in connection with their big mill at Scotia, California. Here the bark is shredded, the long fibres being marketed for insulating materials. Part of the short fibres, after being fully defiberized, are used for battery separators, oil filter pads and insulation for electric water heaters. The remainder goes for soil mulch. Waste wood is chipped and sold to roofing manufacturers for use in roofing felts.

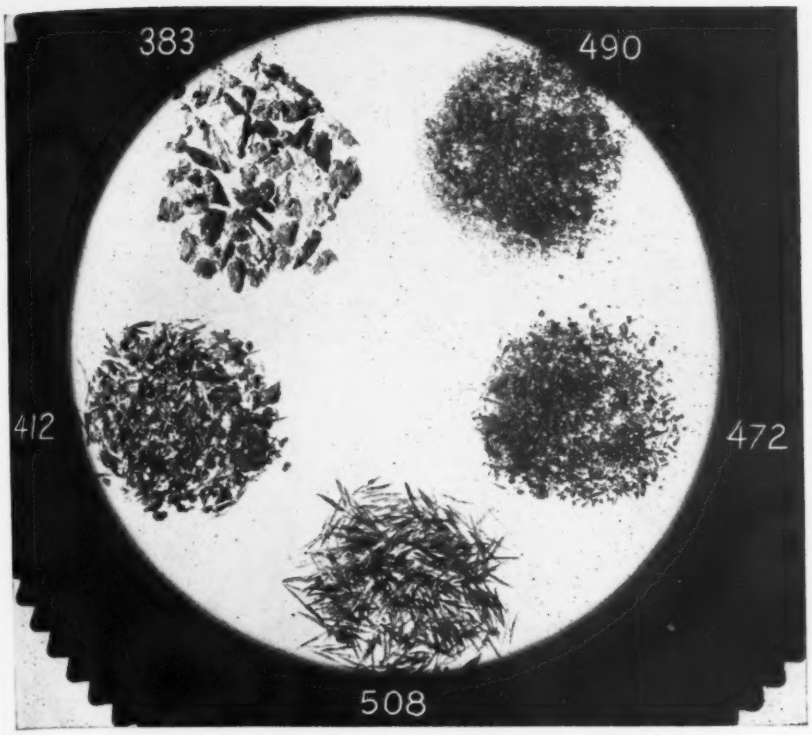
In the shredding process the bark is put through willowing machines similar to those used for cleaning cotton. After the moisture is removed in drying chambers, the short fibres and fine bark are separated from the long fibres, which are then carried on a continuous belt for 15 minutes and treated with ammonium sulphate. This is called the "saferizing" process, which makes the bark flame-proof. The bark is then baled for distribution as insulating material.

"Palco wool" is the trade name used for the insulating material, which was put on the market in 1930 and has gained wide acceptance. One-third of all the frozen food lockers in the United States are reported by Pacific Lumber to be equipped with this product. Other extensive uses are in cold storage warehouses, wineries, truck bodies and railroad passenger cars. Also, nine athletic tracks in universities, colleges and high schools, including Stanford and West Point, have been cushioned with a layer of the material.

Roofing manufacturers found the waste redwood an answer to their rag problem, which had given them endless trouble. They either had to be continually buying rags when they did not need them or else run the risk of being caught short. When the redwood became available about eight years ago, they were assured of a constant source of supply. Some combine the redwood with rags; others use it straight.

Other Western woods do not have the long fibre suited to insulation uses, so the new Weyerhaeuser products are in a somewhat different class except for soil mulch.

**• Below. Peeling bark from redwood logs at Pacific Lumber Co. mills, Scotia, California.**




**• Microphoto shows five numbered fractions processed from bark. Applications in plastics, glues, insecticides and soil conditioning are among a variety of commercial uses.**

They are of a chemical nature, rather than mechanical, and several million dollars have been spent both in the perfecting of machines to turn out the "Silvacon" products and in the study of possible uses to which they are suited.

As far as the cost of equipment is concerned the Weyerhaeuser bark products plant has been understandably expensive. Among the items of pioneered equipment is the hydraulic debarker essential to reclamation of the bark for processing. It has been reported that at least one manufacturer (Allis-Chalmers) will announce a relatively inexpensive hydraulic debarker in the near future. The general impression is, however, that the use of the machine is intended to increase the sawyers' efficiency rather than to reclaim the bark for processing.

All of the Weyerhaeuser research was pointed toward the utilization of old-growth Douglas fir bark. The bark of other species, having a different chemical composition and physical characteristics, would require an investigative program comparable to that of Weyerhaueser before commercial utilization of the bark could be undertaken.

There is even some question as to whether the processes could be readily adopted to the use of younger growth Douglas fir without further costly experimentation. This immediately leads to the question as to whether the Silvacon bark products could be produced as a part of a sustained yield program. Once the older trees had been harvested and the sustaining crop established, it might be necessary to abandon completely the processes and products from bark for, at the best, a modification, and at the worst, a complete revision of both.

The key to the whole problem of bark utilization at the present time seems to be one of markets rather than one of production. The Weyerhaeuser bark plant is capable of producing about 75,000 pounds in three eight-hour shifts. Up to the present writing the plant has not been operated more than eight hours per day, and an increase to two-shift operation seems to depend more upon the sale of existing supplies than upon a shortage of unprocessed bark.

Of the five products being produced by Weyerhaeuser from Douglas fir bark, three are basic and two are physical combinations of two or more of the three basic products. The three basic products are Silvacon 383, flake-like particles of cork; Silvacon 508, lignified bast fibres; and Silvacon 490, amorphous powder. The other two products are combinations of the basic components. Silvacon 412 is a combination of cork particles and bast fibres; Silvacon 472 is a combination of all three of the basic components.

Physical and chemical properties of all five products vary considerably, and the list of possible uses appears to be almost endless. In actual practice the adoption of these bark products for daily use by industry remains to be developed. Many of the proven uses do not now and probably never will require large quantities of the products. Many of the uses are still in the experimental stage and will require both further experimentation and market development before additional demand of consequence will take place.

Of the five bark products Silvacon 472 represents about 45 per cent of the production at Longview. One of the most important uses for 472 is as an extender in phenolic resins which serve the plywood industry as adhesives for the higher grade products.

While 472 has proven quite successful as an extender in phenolic resins, it has not been successfully adopted for similar uses in other types of plywood adhesives. In its somewhat limited field it has proven to be a source of considerable economy to the plywood manufacturers, but the volume which can be consumed in this particular field has definite limits.

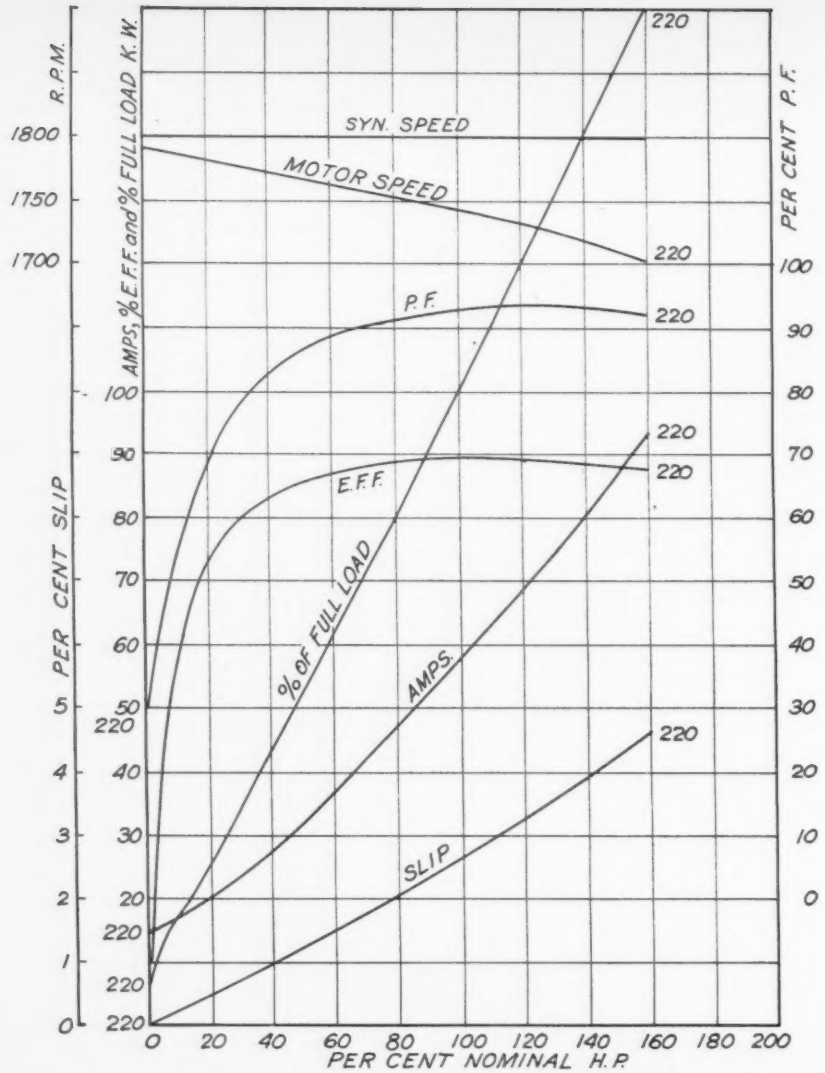
The next largest production, that of Silvacon 383, represents about 20 per cent of the plant output. It was this product, the cork particles contained in Douglas fir bark, that the development project was originally set up to extract as a substitute for cork from the Mediterranean area which was becoming scarce in 1942. Ultimately, it is being sold as a consumer product for soil conditioning, and here a great deal of market development work is still to be done to overcome established competition of other products.

Silvacon 412, representing 15 per cent of the plant production and third in quantity produced, is listed as a reactive ingredient in thermosetting molding compounds, a use which it shares with 508 and 472, and a market for which all three bark products must compete with already established raw materials, principally wood flour and walnut shell flour.

Of the remaining two products, each of which represent about 10 per cent of the bark plant output, Silvacon 490 is being used chiefly as an ingredient in insecticide dusts and match scratcher compounds. Silvacon 508 will serve in practically the same uses as 412.

No attempt has been made here to list all of the uses to which the five bark products are being put or in which they are being used experimentally. It should be apparent from the review of the chief uses that all are of somewhat limited extent and many are competitive with established products. Gradual development of the market may eventually lead to greatly increased demand for bark products, but it is difficult to foresee the application of bark processing to any but the major lumbering operations.

# How To Get
# And Less Of
# And Light




**• Why idling motors use relatively little power. Typical characteristics of standard three-phase 220-volt 1,750 rpm. squirrel-cage induction motor. Line marked "% of full load" shows variation of kw. input with hp. output. At "no load," input is only 6% of full load input. Line "EFF" shows how efficiency falls off with improperly sized motors.**

VARIOUS opportunities exist for industrial plants to make this year's supply of electric power and light go farther in their own establishments, it is pointed out by Pacific Gas & Electric Co. engineers. At the same time they can diminish the strain on northern California's critically short rations of electricity and water.

One of the greatest power economies lies in avoiding peaks, so as to reduce the kilowatt demand of the entire plant. This can be done by staggering the load, which may mean changing production schedules in some instances. While this may seem to work a hardship because of the disturbing effect on production schedules, it probably is no worse than curtailments that were already being put into effect in March by P.G.&E. under instructions from the California Public Utilities Commission.

Individual or unit drives are recommended to take the place of line shaft drives, in order to eliminate the power losses encountered with the latter type. Line shaft losses vary from plant to plant, but are important in every instance. Changeovers are entirely feasible, as motors are in much greater supply than formerly.

Next on the list of recommendations is sizing the motor to the job, the value of which is shown by the accompanying chart. A motor operating at or near its rated output is running at maximum efficiency. An underloaded motor is using up power without corresponding result in work done.

Another good rule to follow is to allow motors to idle rather than shut them off, provided the idle period is not more than five minutes. When the switch is thrown on again there is a sudden inrush of current to the motor which may be four or five times the normal load.

An idling motor only uses five to six per cent of the full load input, so it would take more than five minutes of idling to consume the same amount of current required to start the motor up from a standstill. If the motor is going to be out of use for more than five minutes, then it should be shut off.

Lighting systems within the plant also provide many opportunities for economy, both in using less current and in getting more light with the same amount of current. This may be accomplished in five main ways, as follows:

1. Replace badly blackened bulbs, or flickering fluorescent tubes. Near the end of the lamp's life its efficiency drops rapidly.
2. Paint dark walls in light tones and keep dirty walls clean.
3. Keep outside windows clean by washing regularly. This will increase interior light considerably.
4. Keep fixtures and lamps clean by regular maintenance.

# By On Less Both Power This Season

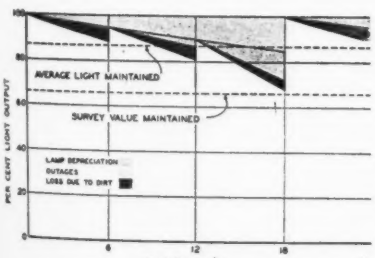
## DO YOU GET AS MUCH LIGHT AS YOU PAY FOR?

### Chart of Results Obtained in a Factory Study

| | *Foot-Candles as found* | *Foot-Candles after cleaning walls & ceilings* | *Foot-Candles after fixtures cleaned* | *Foot-Candles with new lamps* | *Foot-Candles with corrected voltage* |
|---|---|---|---|---|---|
| Location 1 | 15.0 | 18.0 | 23.0 | 42.0 | 55.0 |
| Location 2 | 14.0 | 17.0 | 21.0 | 41.0 | 55.0 |
| Location 3 | 8.0 | 13.0 | 16.0 | 30.0 | 37.0 |
| Location 4 | 10.0 | 14.0 | 18.0 | 32.0 | 41.0 |
| Location 5 | 9.0 | 14.0 | 18.0 | 32.0 | 37.0 |
| Location 6 | 10.0 | 13.0 | 16.0 | 30.0 | 40.0 |
| Location 7 | 8.5 | 14.0 | 18.0 | 32.0 | 45.0 |
| Location 8 | 20.0 | 25.0 | 31.0 | 45.0 | 60.0 |
| Average | 11.8 | 16.0 | 20.1 | 35.5 | 46.2 |
| Average in percentage of maximum | 26.0% | 35.0% | 43.0% | 77.0% | 100.0% |
| Percentage of increase due to each factor | ..... | 35.6 | 26.0 | 77.0 | 30.0 |
| Increase in percentage relative to total light as 100% | | 16.0 | 13.0 | 31.0 | 14.0 |

5. Test plant distribution lines with a voltmeter, to determine whether they are undersized. An excessive drop means that light is being lost.

Operating a plant without attention to all these features in the electrical system is like using an automobile with leaky piston rings, accumulated carbon in the cylinders, poor adjustment of carburetor and timer. Just as these waste gasoline and reduce mileage, so the electrical installation can waste electric current and fail to give proper lighting.




**• Survey showed average value of illumination maintained in plants is approximately 66%. Recommended maintenance methods would raise this to about 87%, a 30% gain.**

The job of fixture cleaning should be assigned as a fixed responsibility to specific persons with specific instructions that the program be followed explicitly. Such a plan will also pay big dividends in improved working efficiency of the working personnel in the plant.

A recommended method for establishing a cleaning schedule is to make periodic checks of the illumination with a light meter (in order to determine the length of time required for the illumination to drop to approximately two-thirds of its initial value). At this point the fixtures should be cleaned with soap and water. This period may be only three or four weeks in very dirty locations, but under average conditions will be from two to six months.

One example of the need of regular servicing is shown in the accompanying illustration. Another example is that of a porcelain enameled reflector for a fluorescent luminaire which had not been serviced for approximately six months. The light output was checked in a photometric laboratory during various phases of cleaning, with the following results in terms of decrease of light output:

1. Dirty reflector and dirty lamps—22.8 per cent
2. Dirty reflector and clean lamps—18.1 per cent
3. Reflector wiped with a dry cloth—6.2 per cent
4. Reflector and lamps washed—0 per cent

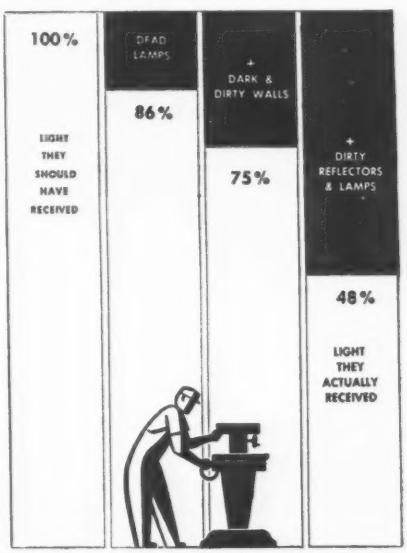
A laboratory test on two high bay reflectors resulted as follows:

| *Decrease in light output* | *Open high bay reflector from average factory area* | *Enclosed dust tight high bay reflector from foundry* |
|---|---|---|
| As found | 42 per cent | 7 per cent |
| Dry wiped | 35 per cent | 5 per cent |
| Washed clean | 0 per cent | 0 per cent |

Taking the reflector down to the floor and washing it there with a detergent and warm water is recommended. In the case of aluminum reflectors, care must be taken lest alkaline detergents attack the metal, so neutral detergents are preferable. Even better is a liquid wax or wax emulsion, which will not only remove the dirt but also leave a thin film of wax which helps to retain reflectivity.

For the reflecting surface of many of the new large-area, low-brightness industrial units a white casein base paint is used which can be washed two or three times with mild soap and water, but after that it tends to lose its reflectivity and a fresh coat of paint should be sprayed on. There is a tendency for the paint to peel away from the metal after three or four coats, so the old paint should then be scrubbed off and a new coat applied.

Wiping reflectors with a dry cloth at the time lamps are replaced is inadvisable, particularly when there is greasy dirt that will adhere to the surface. The reflector cannot be cleaned thoroughly by this method, and the grit and grime remaining after a number of dry wipings tends to form a permanent coating which cannot be removed. The life of the reflector also is apt to be affected.




*—Courtesy Sylvania Electric Products*

**• Number of unnoted dead lamps decreased amount of light by 14%; wrong color of paint plus dirt decreased it 11%; accumulated dirt on the reflectors and lamp caused another 27% loss. Grand total: 52% less light than the plant should have had.**

MILLING MACHINES

| Element | Element Description | Elemental Handling Standards | Allowed Normal Handling Time |
|---|---|---|---|
| A 1 | Pickup Piece from Mill Table | .013 | |
| A 2 | Pickup Piece from Box, Tray, or Bench | .024 | |
| B 1 A | Blow Piece Clean - Simple | .035 | |
| B 1 B | " " " - Difficult | .060 | |
| B 2 A | Blow Fixture Clean (1 Pc - ILP & ILS) | .035 | |
| B 2 B | LP = Locating Pin (1 Pc. Over ILP & ILS) | .050 | |
| B 2 C | LS = Locating Surface (Mult. Pc. - ILP & ILS) | .020x--P + .015 | |
| B 2 D | P = No. of Pcs. (Mult. Pc. Over ILP & ILS) | .035x--P + .015 | |
| B 3 A | Brush Fixture Clean (1 Pc.-ILP & ILS) | .050 | |
| B 3 B | " " " (1 Pc. - Over ILP & ILS) | .025 (-LP + - LS) | |
| B 3 C | " " " (Mult.Pc.-ILP & ILS) | .035x--P + .015 | |
| B 3 D | " " " ( " " -Over ILP & ILS) | .025 P (-LP + - LS) | |
| B 4 | Rub Piece Clean By Hand | .020 | |
| B 6 A | Wash Fix. Clean with Coolant(1 Pc.-ILP& ILS) | .035 | |
| B 6 B | " " " " " (1 Pc.-Over ILP& ILS) | .050 | |
| C 1 A + F 1 | Pos. & Rem. Pc. From Fix.(Pc.is Symetrical) | .020x - LP + .020 | |
| C 1 B + F 1 | " " " " " " (Pc.not Symetrical) | .020x - LP + .040 | |
| C 1 C + F 1 | " " " " " " (Pc. is Symetrical) | .020x - LS + .020 | |
| C 1 D + F 1 | " " " " " " (Pc.not Symetrical) | .020x - LS + .040 | |
| C 2 + F 2 | Tighten & Loosen each Thumb Scr., Wing Nut or Star Handwheel | .080 | |
| C 3 + F 3 | Position & Remove Each Slotted Washer | .030 | |
| C 4 + F 4 | Tighten & Loosen 1 Hex Nut or Allen Scr. | .144 | |
| C 5 + F 5 | " " " Each Add. H.N. or A. Scr. | .062 | |
| C 6 + F 6 | Tighten & Loosen Cam Lever | .060 | |
| C 7 A + F 7 | Pos. & Remove Slide Clamp (Not Swivel) | .028 | |
| C 7 B + F 7 | " " " " " (Swivel) | .046 | |
| C 8 + F 8 | Put On & Remove Each Removable Part | .100 | |
| C 8 + F 9 | Tighten & Loosen Air Clamp | .030 | |
| D | Engage or Disengage Power Feed Lever | .018 | |
| E 1 A + E 2 A | Start & Stop Spindle (Lever) | .030 | |
| E 1 B + E 2 B | Start & Stop Spindle (Push Button) | .020 | |
| G 1 | Piece From Fixture to Mill Table | .013 | |
| G 2 | " " " " Tray, Bench or Box | .024 | |
| H | Hold Table to Micro Scale | .050 | |
| I | Pos. Table To & Fr. Cutter(Hand) D=Distance | .009x - D + .024 | |
| I 2 | Pos. Table To & Fr.Cutter(Power) D=Distance | - Dx - MPI | |
| | MPI - Min. Per Inch Fast Travel of Table | | |

Total Allowed Handling Time _____
Total Allowed Milling Time _____
Total Allowed Time _____

**• Standard data summary sheet, with actual data from a job application, suitable for milling machines of the type Cincinnati #2 and Brown & Sharpe # 12.**

# Correct Use of Standard Data

By CHARLES H. LYNCH
Executive Engineer
Anderson-Nichols & Company, Los Angeles

THE compilation of standard data represents the ultimate refinement in the technique of time study. It can be defined as the analysis of, and the establishment of a time relationship for, the elements necessary to perform a given operation on a variety of parts.

For purposes of this discussion, it will be assumed that the analysis of method and layout has been completed, and that the method being considered is the most practical under the existing circumstances.

The procedure for establishing standard data is:

1. Define the operation to be performed.
   a. The definition should include a complete description of the function and a clear-cut statement of the starting and stopping points of the operation involved.
2. Explain the operating conditions.
   a. A small scale layout of the area utilized for the operation should be made.
   b. A sketch for an individual workplace layout should be made.
   c. A complete description of all hand tools and their functions should be written.
   d. Material handling equipment should be clearly described.
   e. Machines should be described as to manufacturer's type and size, ranges of speeds and feeds, and type of cutting tools used, etc.

**3.** Define the elements required to perform the operation.

a. The definition should include a complete description of the function, and a clear-cut statement of the starting and stopping points of each element. It should be possible from this preliminary analysis to determine whether the element will be fixed or variable.

b. The successful application of the standard data method is largely dependent on the care used in establishing and defining the elements. Elements should be restricted to single functions. For example, "Pick up piece from bench," and "Place piece in fixture" should be separate elements.

**4.** Establish the standard time for each element.

a. Time study each element, taking care to adhere to the starting and stopping points as defined above. The standard data method is based on the synthesis of elemental times into an operation standard. It is obvious, therefore, that we are interested in establishing sound elemental time values, and that the operational time value is of no interest at this stage.

The observer can select one or more elements for observation and should move from job to job, timing and rating these elements until satisfied that the proper time standards for all elements have been established.

**5.** Synthesis of operational standard times.

a. We now have arrived at "the proof of the pudding." Will the elemental time values properly fit the operation for which they are intended? Note that no reference has been made to the various allowances that should properly be a part of every operational standard. The establishment of standard allowances is a study in itself and has been omitted from this presentation.

To check the elements, the observer will take time studies of all available jobs on the operation for which the elemental times are applicable. These may be overall cycle checks or be broken down by elements, or groups of elements, according to the judgment of the observer. Care should be taken that no extraneous time (properly included in allowances which have not been considered in the elemental times) is included in the cycle time checked.

The results of these time studies should be compared with the synthesized operation time established from the elements. Any appreciable variation should be analyzed and the causes determined.

**6.** Application of standard data.

a. For purposes of application the standard data should be put into the simplest form consistent with the requirements of the operation to which it is applicable. It is frequently possible to combine the constant elements into several groupings and cover most jobs.

Charts for the variable elements should be prepared to save time in establishing operation standards. Where a large number of operation standards are to be applied, it is frequently desirable to have the simplified standards prepared on standard size sheets by one of the reproduction processes. The applicable standards can be checked off as required for each different job and serve as a permanent record of job content.

**7.** Preservation of basic data.

a. It is essential that all data collected in the compilation of the standards be preserved for future reference. It is also essential that such data be in such form that it can be readily interpreted.

It has been the writer's unfortunate experience to be called upon to check many applications of standard data that were apparently no longer applicable, and, in attempting to review the basic data from which the standards were derived, it was either not available or in such form as to be useless. In most instances, the standard data had been in use for several years and the personnel who had established it were no longer available or could not recall the details of layout, method or even an adequate description of the elements. In order to present the standards on a sound basis, it was necessary in most cases to do the job over completely.

The few hours required properly to record and index the facts pertaining to the job at the time it is installed will save days when questions arise pertaining to the standard

**MILLING DATA**

MACHINE DATA

1. MACHINE NUMBER _____
2. TYPE OF MACHINE _____
3. H.P. ON SPINDLE _____

CUTTER DATA

4. TYPE OF CUTTER _____
5. DIAM. OF CUTTER _____
6. WIDTH OF CUTTER _____
7. NO. OF TEETH _____
8. MATERIAL IN TEETH _____

CUTTING DATA

9. MATERIAL CUT _____
10. WIDTH OF CUT _____
11. DEPTH OF CUT _____
12. LENGTH OF CUT _____
13. RPM OF SPINDLE _____
14. TABLE TRAVEL (IN. PER MIN.) _____
15. TYPE OF CUT: CONVENTIONAL _____ CLIMB _____ PLUNGE _____
16. DISTANCE BETWEEN STOPS _____
17. APPROACH OF CUTTER _____ (SEE CHART I-II-III)
18. CLEARANCE START OF CUT 1/16"
19. CLEARANCE END OF CUT 1/16"
20. CHIP LOAD PER TOOTH _____
21. SURFACE FEED OF CUTTER _____
22. TIME PER INCH _____ (SEE (14) AND CHART V)
23. UNAVOIDABLE DELAY ALLOWANCE _____

MILLING TIME

24. TABLE TRAVEL _____ = LGTH. OF CUT(12)____ + APPROACH(17)___ + CLEARANCE(18)(19)___

TABEE TRAVEL(23)____ x TPI(22)___ x1+UDA(23)_____ _____ TOTAL ALLOWED MILLING TIME

**• With modifications these charts could be applied to conform to actual conditions existing in plants.**

• Snake corridor passes 750 tons of coal an hour almost two-thirds of a mile by conveyor belt from the transfer house to the tipple of U. S. Steel's Geneva coal mine in Horse Canyon, Utah. Emery C. Olsen, Geneva's safety supervisor, pictured in foreground.

# New Handling Features at Mine Speed Coal to Railroad

MATERIALS handling at the U. S. Steel Corporation's Horse Canyon mine in Utah, the largest coal mine west of the Mississippi, is engineered on a basis of smooth flow of the coal, moving it in the most direct course possible from the actual face until dumped into railroad cars. One of the outstanding features is the use of nearly a mile of belt conveyors between the mouth of the mine and the blending bin.

The outcrop of the seam is Book Cliffs, where the Geneva Mine is located, is 6,335 ft. above sea level. It varies in thickness from 10 to 16 ft. and is badly faulted in many places, which complicates mining operations. Another factor increasing the difficulty is a 12 per cent downward pitch of the seam away from the outcrop. One favorable aspect, however, is the fact that the mine is free from gas with few exceptions to date, thus greatly facilitating complete mechanization.

The main slopes to the mine have been extended down the pitch of the seam to 5,900 ft. in length and three sets of north and south entries, eight feet high and 16 ft. wide, have been driven approximately at right angles from these main slopes. From these entries connecting raises are driven to develop rooms.

In the development work on the strike of the seam a combination drilling and cutting machine undercuts the coal and then drills blast holes, following which the coal is broken down from the face by blasting with sheath permissible explosives. A track-mounted mobile loader is then advanced and loads out the loose coal into eight-ton capacity four-wheel steel mine cars. These are assembled into car trains of variable number by 10-ton electric gathering locomotives. The trains in turn are hauled to either of two rotary dump stations by 15-ton electric hauling locomotives.

At present four track-mounted cutting machines, each equipped with an electric drill, and four track-mounted loading machines, are being used on development work in strike entries. For turning room necks, and doing miscellaneous loading in raise districts, three small caterpillar-mounted loading machines are available. These machines each operate in conjunction with a short-wall cutting machine and a post-mounted electric drill.

In regular production operation the coal is worked down from the upper reaches of the seam, using what is known as retreat mining practice, which assures maximum coal recovery and maximum safety. Short-wall mining machines, each with a post-mounted and a hand-held electric drill, prepare the face for blasting.

After blasting, a duck-bill shaker conveyor loader unit is used in loading the prepared coal, feeding it out to a belt or flight conveyor line which carries and delivers directly to 36-in. belt conveyors located on the pitch of the seam in the raise entries. In lateral cross-entries, however, it is fed to chain conveyors or 36-in. belt conveyors which feed at right angles to the raise entry belt conveyors. The shaker loaders can be extended to handle a maximum delivery distance of 350 ft., while the continuous conveyors or belts can be extended as far as desired by merely adding sections as needed.

When the mine was opened in 1942, there were 36 shaker conveyors, with their complementary belt and chain conveyors, short-wall mining machines and coal drills. These were sufficient at that time because of the short hauls involved. Now, however, the mine has been greatly expanded, two levels being intensively operated and a third developed, and haulage distances have lengthened substantially.

To meet this condition, 10 more shaker conveyor units have been added, each unit consisting of a complete shaker conveyor,

a short-wall cutting machine, one post-mounted drill and one hand-held drill. It is expected that all of the units will maintain at least the present daily average of approximately 56 tons per unit each shift.

Carrying coal mined in their own raise entries as well as coal delivered from lateral entries, the belt conveyors operating in conjunction with the shaker conveyor loaders take the coal from the pitch of the seam to the main haulage way. The coal is discharged from the conveyor into eight-ton steel mine cars, spotted by electric gathering locomotives. An operator stationed at discharge end of the conveyor controls all belt operation. The main belt discharges into a loader head with a capacity of eight tons approximate, which does away with the necessity of stopping the belt for car changes.

There are at present 12 gathering locomotives in service, each of 10-ton capacity. They are kept busy in connection with the four track-mounted mobile loaders used in development work, and in serving the caterpillar-mounted loading machines. The locomotives assemble the loaded cars on partings. From these various partings, trips in turn are picked up by one of the four 15-ton electric haulage locomotives now in service, and taken to one of the two rotary dumps now in the mine. Haulage is directed by a dispatcher through a mine telephone and signal system.

During the early stages of mine development, before normal development and production operation had been reached, two hauling locomotives and 250 mine cars were sufficient to bring out enough coal to supply the nearby beehive coke plant and the Geneva Steel Co. by-product coke ovens, or approximately 5,500 per day. At that time working places were relatively close to the No. 1 rotary dump, coal was being mined from one level only, and haulage distances were comparatively short, which made possible rapid haualge cycles of mine coal cars.

With the expansion of the mine and the rapid development of the second level, plus additional development work on the third level, additional hauling locomotives and 100 more mine coal cars were required. To assure a continuous flow of coal, two additional 15-ton haulage locomotives were purchased, together with the necessary mine coal cars, 12 material cars and 16 more rock cars.

It is estimated that with the new equipment, which includes the shaker conveyor units and gathering locomotives previously mentioned, the Geneva coal mine will be able to produce 6,800 net tons of coal per day on a two-shift per day basis of operation.

There are now two rotary dumps in operation, one at the first level and the other on the second level. Each of these dumps empties one eight-ton mine car at a time into a hopper feeding a 54-in. eight-ply rubber covered belt. The No. 2, or lower rotary dump, is located at the 2,200-ft. level and its 54-in. belt 2,200 ft. long, takes the coal up the pitch of the seam to the No. 1 rotary dump belt. Here it delivers its load to another 54-inch belt, which also takes coal from the hopper under the No. 1 rotary dump.

This belt, which is 1,300 ft. long, is driven by a 125 hp. A.C. motor, operates at 400 ft. per minute and delivers the coal to a transfer house outside the mine. The 1,300-ft. section operates through an 8x10-ft. rock tunnel, running 3 per cent from below the upper or No. 1 rotary dump to the outside transfer house. At the transfer house a primary roll crusher, set to a seven-inch opening, breaks the run-of-mine coal to a 7x0-in. size. A magnetic pulley on the main conveyor belt serves to eliminate any tramp iron from the raw coal before it enters the primary crusher.

From the transfer station the coal is fed to a 48-in. continuous belt conveyor, 3,500 ft. long and running at 400 ft. per minute. This discharges to a tipple at the mouth of the canyon.

At this point a breaker, equipped with shaker screens, sorters and picking tables, reduces the coal to the various sizes required, the coal moving on over another section of 48-in. conveyor to a 12-cell blending bin 160 ft. long and 60 ft. deep, with a storage capacity of 4,000 tons. A tripper at the top of the bins discharges coal from the belt through spiral chute conveyors into the bin cells.

**• Mine cars receive the coal from conveyor belts at point in the background.**

**• Skids nudge freshly blasted coal toward conveyor belt of crawler mounted loading machine. The men are Bert Frandson, Frank Zupon, Jr., and Marvin Smith.**

NEW PRODUCTION TECHNIQUES

# Plastic Pipes for Gas; Sand Drying By Gas

IN THESE days of continuing critical pipe shortages, the experience of Southern California Gas Company with extruded cellulose acetate butyrate tubing is attracting more attention as time goes on. Nearly six years of exhaustive testings have made the use of this pipe to conduct fuel gas from the main to the customer's meter a thoroughly practical proposition rather than merely an experiment.

The one-inch T tubing used for this purpose has several advantages over steel pipe; it is readily available, whereas steel has been in short or unstable supply for years; it is light in weight and easily handled; fewer men are needed to install it; shipping costs are lower and installed cost is in line; it can be bent on the job and requires little equipment for joining; it resists deterioration in most soils.

Southern California Gas Company's tests revealed that the pipes could be used almost everywhere, except where they might come in contact with refinery gases and other products of oil refining. They are laid only in mild soils, not in rocky ground (since rocks could pinch the tubing together when the excavation was filled and tamped), and are placed at the standard depth of 18 in.—out of reach of gardener's shovels and hoses.

**• Joining lengths of plastic gas pipe used in Southern California Gas Co. installations is easy and requires only a solvent cement and a sleeve of larger diameter plastic tubing.**

Joining is simple. The two ends of the one-inch *outside*-diameter T pipe are coated with a solvent cement and joined. A sleeve of one-inch *inside*-diameter tubing, similarly coated on the inside, is then slipped over the joint, and the three pieces are "welded" together at once. Cement is colored to provide for easy visual inspection of the joint.

Joints are covered with grease, two wraps of cellulose acetate sheet, and one of kraft paper. This makes a suitable shield for mild soils, and does away with the time and bulky equipment necessary for preparing the hot asphalt shields which are used on steel-pipe joints.

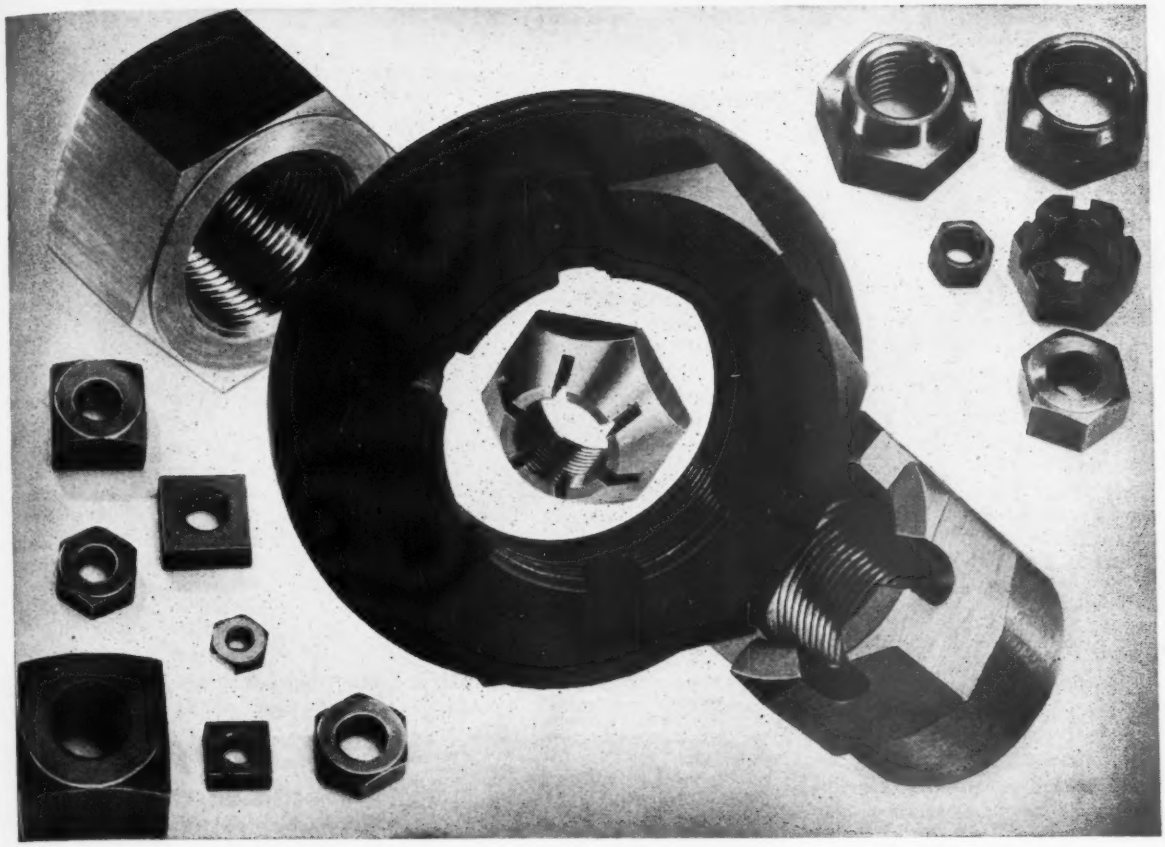
Gradual bends in the flexible tubing are easily accomplished on the job. Right-angle bends are made, in accordance with company rules, by means of prefabricated right-angle sections sleeve-jointed to the tubing.

Joints at the "service T," where the T pipe meets the steel gas main, and at the "riser," where a copper tube joins the T pipe to carry gas into the house, are made with Dresser fittings. These are preassembled iron joints in the shape of hollow dumbbells. A gas-tight assembly is made by tightening the ends of the Dresser fitting, which contains rubber glands in either end, around the plastic pipe, metal T, or riser.

To make a connection, a standard metal T is welded, crossbar down, to the steel main. (If a mechanical service T instead of a welding T is used, welding is not required—meaning one less man on the installation crew.) The leg of the T which is at right angles to the main is assembled with the Dresser fitting, as is the end of the gas pipe. A similar fitting is used on the other end of the pipe, and a copper tube completes the connection to the meter.

The main is tapped by means of a special tool inserted through the vertical crossbar of the T. Afterwards, the top end of the T is plugged, and gas flows from the main up through the T, into the pipe, and to the customer's meter.

*(Continued on page 52)*



# IT'S "t.f.e."

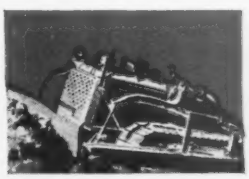
## TO SPECIFY A BRAND OF *KNOWN* DEPENDABILITY

The only thing you can gain by buying nuts on "price" alone is an *illusion* of saving. When you buy on the basis of *total* fastening cost, your *actual* savings far exceed the amount of an imagined one.

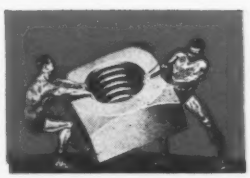
RB&W builds into nuts (and other fasteners) the "know-how" from 103 years of fastener experience, developments of an outstanding research staff, and the benefits of the most modern machinery. This means substantial savings to you in time, money and dependability.

In addition, RB&W's quality control over production assures that *each* nut (bolt, screw, rivet or special) is fully capable of playing its part in True Fastener Economy.

**TIME**—Holes repunched clean and true—tapped in latest-design tappers—insure accurate and uniform thread formation for quick run-on.



**MONEY**—Cold-working of the metal also increases its density for greater load-carrying—maximum holding per dollar of initial cost.



**DEPENDABILITY**—The RB&W cold-punching process in itself insures a sound product, free from structural defect.

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*103 Years Making Strong the Things That Make America Strong*

## Production Technique

*(Continued from page 50)*

The plastic Tenite and joints are made to stand up under a maximum safety pressure of 30 lbs. per sq. in., although in tests they are said to have withstood far higher pressures.

Thus far, Southern California Gas Company has made about 500 installations (about 40,000 ft. of tubing). For the time being, the plastic tubing will be used for domestic standard services only, which involve just one size of tubing and fittings. When suitable fabricated plastic T's and other fittings have been devised, the gas company may also employ the tubing for "branch" installations — i.e., lines from which other lines branch.

The pipe for Southern California Gas Company is extruded by Modern Plastics Company, Los Angeles. The cellulose acetate butyrate is made by Tennessee Eastman Corp., under the name of "Tenite."

BECAUSE the rails of the State Belt Railway in San Francisco may be slippery any day of the year, a gas-fired sand drying machine is maintained at the roundhouse to supply all the dry sand which the line's six diesel engines require.

Sand is brought in carloads and dumped at a point adjacent to the main sand house. When first received, sand is lumpy and wet. If not dried, it would clog up the interior of the tubes on the engines.

In the storage room workers shovel the sand onto a small dolly truck which rolls up a conveyor to the top of the triangular-shaped dryer. The car is tilted and the sand dumped into the machine. This dryer holds four carloads or 1¼ tons of sand.

The gas-fired machine dries sand in about half an hour. Before, with another fuel, the machine required almost two hours to turn out a full load of dried sand, officials say. Also, because of frequent firings, the heat from that fuel burned up the lower cast iron section of the dryer and also helped to deteriorate the bricks in the oven. Gas overcame this objection.

To speed up the operation, the railway installed a gas burner. It has about 35 tips, equally spaced, screwed into the manifold at a 45-degree angle and facing outward.

As the sand is dumped into the dryer, angle irons on the inside help break up the flow of the sand and provide a spiral motion to its downfall. To dry the gas, the burners use one part of gas to 10 parts of air. Finally, when the sand is heated and loses its moisture, it sifts out from a circular opening on the side of the dryer. The sand is then shoveled into a 10-ft. storage tank.

Each diesel engine will hold about 27 cu. ft. of sand. This amount usually lasts for about two to three days, dependent, of course, upon weather conditions.

SAVINGS of nearly $1,000 a day in fuel bills by the use of air preheaters and pulverized coal instead of firing coal on a grate have become possible in beet sugar refining, according to R. H. Cottrell of Amalgamated Sugar Company. As outlined by him, the situation is as follows:

The trend in modern boiler construction is toward higher pressures, the use of pulverized coal in place of firing coal on a grate, and the use of air preheaters.

For the present, there seems to be little justification for going above 300 psi. working pressure. With modern turbine design acceptable water rates are realized at these pressures, and as there is a need for about 50 per cent process steam on beets we must add 10 to 15 per cent low pressure make-up to the exhaust line even for turbine back pressures of 35 psi.

Below 400 psi. it is difficult or impossible to exceed a boiler efficiency of 80 without an air preheater. With an air preheater efficiencies of over 85 are reached.

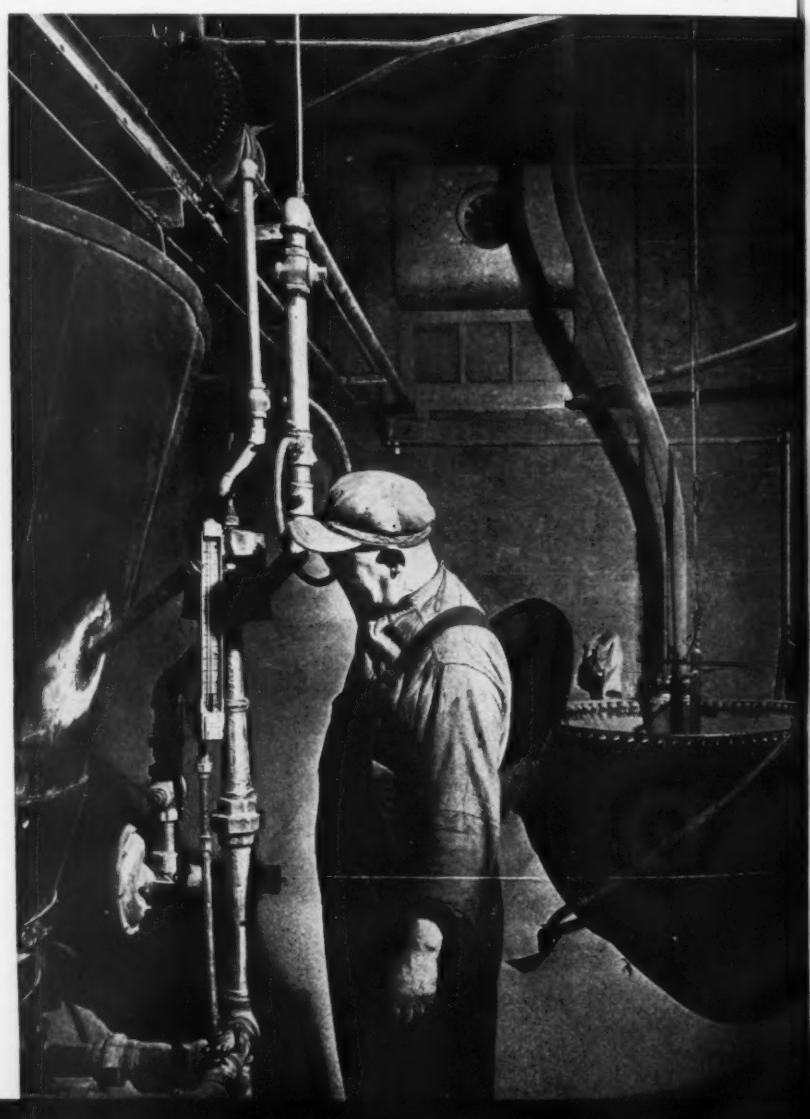
Current coal prices justify air preheater and induced and forced draft fans.

The trend is toward fewer boilers. Former practice provided from five to 12, or even more, units. The limit in reduction has been reached at Amalgamated's Twin Falls, Idaho, factory where one boiler serves the factory. With one or two units it is a relatively simple matter to employ automatic, registering controls. They have found Bailey controls reliable and they require little maintenance.

Probably a substantial number of the factories in this country operate with steam consumption at a level of 90 per cent on beets and a boiler house efficiency of 70 per cent.

A factory cutting 2,400 tons of beets per day and having 100 days of campaign will spend $215,000 for coal under the above conditions. Compare this with a factory designed to consume 60 per cent steam on beets and with a boiler house efficiency of 85 per cent. This plant would spend $118,500 in a similar campaign. The saving is $97,000 per campaign or $970 per day. As fuel costs go higher these differences will increase.

**• Here, a worker is applying one part of gas to 10 parts of air to operate the sand drying machine. The machine holds 1¼ tons of sand. This amount will be dried in one-half hour.**



One of the best-informed writers at the Nation's Capital, Arnold Kruckman, presents each month authoritative comments on political developments and their practical application to industry of the West. Any reader who wishes additional information may write to him directly, using business letterhead, at 1120 Vermont Avenue, N.W., Washington, D.C. Inquiries will be answered free of charge. You also are invited to contact him personally in Washington. Copies of pending congressional bills may also be obtained free of charge.

# Federal Program For Western Fuel Plants

## *Coal hydrogenation in Utah proposed for supplying Los Angeles; Union Oil Co. active in shale research*

By ARNOLD KRUCKMAN
Washington D.C. Editor of
*Western Industry*

WASHINGTON, D. C. — Ways and means of launching synthetic fuels production in the United States on a very large scale were to be considered by Congress during March. Interstate and Foreign Commerce Committee summoned a large number of witnesses to discuss H. R. 5475, introduced by Chairman Charles A. Wolverton, Republican Congressman from New Jersey. The bill, obviously hastily drawn, largely to supply the basis for consideration, provides that Congress shall appropriate $400,000,000 which Reconstruction Finance Corporation shall use to secure construction of three plants, each with a capacity of making 10,000 barrels synthetic liquid fuel daily.

One plant, designated as Plant A Type, will be devoted to hydrogenation of coal, to produce a high octane light gasoline. Plant B Type is to make a synthesis of liquid carbons from coal to produce a standard octane-rating gasoline, and Diesel oils. Plant C Type is to make shale-oil from oil-shales, i.e., the heavy oils used as fuel.

### Construction of Plants

The bill provides the Government funds are to be supplied to any person or corporation who comes forward with a practical background and a demonstrable ability to establish a plant. If no one qualifies within 120 days (four months) after the bill becomes law, the RFC itself is authorized to launch the undertaking on behalf of the Federal Government.

It is not anticipated the bill will be enacted as written. It is chiefly aimed at making effective the Act of Congress of April 5, 1944, which gave to the U. S. Bureau of Mines the job of devising the methods by which synthetic liquid fuel could be manufactured. The U. S. Bureau of Mines has successfully performed its task, and the data are now sufficient to start the new industry.

Since the shales, and the most useful types of coal, are found principally in the West, it is expected the plants will be built west of the Rocky Mountains. It is understood Union Oil Company and Gulf Oil Company have been the most active champions of the undertaking, while the oil companies with foreign affiliations and resources have not evinced such enthusiasm.

### Effect on Arabs

Here in the capital it also is thought that a decisive program to bring the production of synthetic fuels into existence will have an effect upon the Arabs. The astute bargainers of the Palestinic area have been playing very coy about making the necessary commitments with Americans, both private and governmental.

Fuel oils are extremely important to us in view of the ticklish international uncertainties ahead. They are urgently important to our Navy, to our Air Forces, and to our Army, as well as to our merchant marine, and to our entire domestic industry.

In a statement Congressman Wolverton emphasized our military and economic needs. He stressed that it is not intended to bring the synthetic liquid fuel industry into existence to replace the domestic crude oils or to eliminate foreign imports.

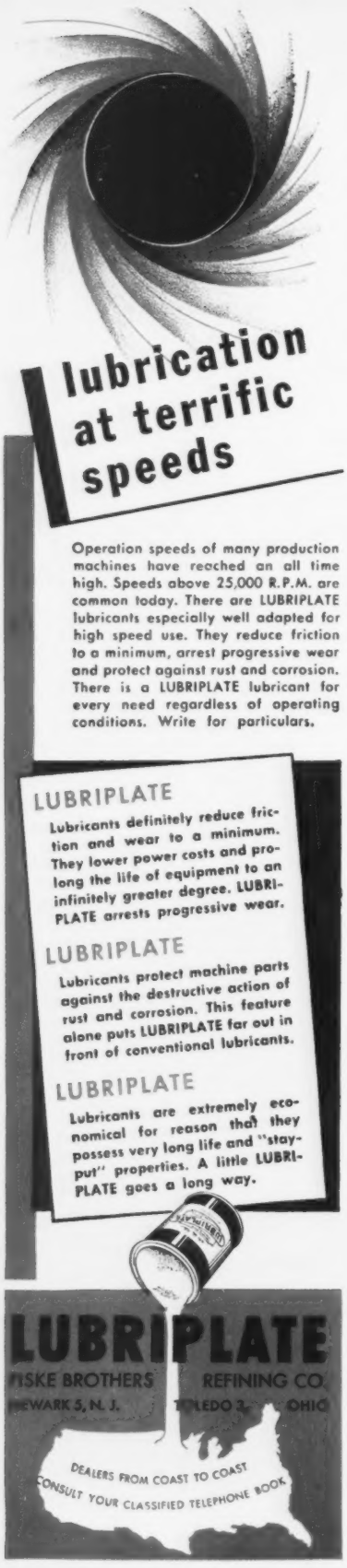
National Defense Secretary Forrestal vigorously urged the establishment of more pilot plants as well as necessary full-sized producing plants. He drew attention to the difficulty in which we found ourselves at the early stages of the last war when we discovered we had lagged lamentably in preparing for the production of synthetic rubber.

Forrestal suggests we may have the same experience if we do not throw into gear with everything we have available to supply the resources to make synthetic liquid fuels. He points out that to produce the 2,000,000 barrels we should have daily, will require plants which will use 16,000,000 tons steel, cost $9,000,000,000, and take three years to build. He does not expect any such program to be carried through at this time, but he insists that a substantial start should be made.

Aside from its own extensive research and experimentation, the U. S. Bureau of Mines has been working in cooperation with a number of oil companies. Much work has been done in the oil companies' laboratories. The recent very detailed report issued by Secretary of Interior Krug mentions the work supervised by the U. S. Bureau of Mines at the Hayes Retort of the Colorado Fuel & Iron Company, at Pueblo., Colo.; at the fluid catalyst pilot plant of the Standard Oil Development Company at Baton Rouge, La.; at the plants of the TVA at Wilson Dam, Ala.; as well as at plants and laboratories of other Federal agencies, and in cooperation with the Armed Forces, in educational and research institutions, and with other industrial organizations.

The U. S. Bureau of Mines itself has operated plants producing synthetic liquid fuel at Rifle, Colo.; at Louisiana, Mo.; at Morgantown, W. Va.; at Bruceton, Pa.; and at Peoria, Ill. It has used its facilities such as the Petroleum and Oil Shale Experiment Station at Laramie, Wyo.; the laboratories and research facilities at Pitts-

*(Continued on page 54)*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Operation speeds of many production machines have reached an all time high. Speeds above 25,000 R.P.M. are common today. There are LUBRIPLATE lubricants especially well adapted for high speed use. They reduce friction to a minimum, arrest progressive wear and protect against rust and corrosion. There is a LUBRIPLATE lubricant for every need regardless of operating conditions. Write for particulars.
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Lubricants protect machine parts against the destructive action of rust and corrosion. This feature alone puts LUBRIPLATE far out in front of conventional lubricants.
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Lubricants are extremely economical for reason that they possess very long life and "stay-put" properties. A little LUBRIPLATE goes a long way.
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# Federal Fuels Program

*(Continued from page 53)*

burgh, Pa.; and its facilities at Torrance, Calif.

At Rifle, Colorado, the U. S. Bureau of Mines has operated two oil-shale mines, and a demonstration synthetic oil-shale liquid fuel production plant. One type of selective shale has given a yield of high grade oil between five and 10 gallons per ton in retorting work. The shale of the other mine yields 30 gallons per ton. Secretary Krug's report states the oil shale reserves may be much greater than originally expected.

Very limited core-drilling work indicates the possibility that the recovery of shale-oil may run as high as 200,000,000,000 barrels oil in Colorado alone. This is contrasted with the estimate made in 1916 that the potential was 96,000,000,000 barrels for the whole country. The higher figure for Colorado is based on an estimate of an average yield of 15 gallons, or more, per ton of shale.

It has been found in the plant at Rifle, with 244 personnel, which produces an average of 50 barrels per day, that by simple refining processes, crude shale oil will yield No. 5 and No. 6 residual fuel oil. Apparently, to obtain No. 3 distillate, and light Diesel and gasoline, on a satisfactory commercial basis, will require further development of refining methods. The most important factors of conversion of oil-shale to oil are time, temperature, and quantity of heat required.

Over 1,400 shale samples have been assayed in connection with the Colorado work by the modified Fischer method. Much work has been done at the Union Oil pilot plant located at Rifle, Colorado.

It is estimated the Rifle-De Beque area, in Colorado, has 300,000,000,000 barrels shale-oil, or 150 years' supply at the 1946 rate. The Krug report records that in eight months 4,600 tons shale have yielded, over-all, 86,000 gallons oil.

The plant for the hydrogenation of coal was erected at Louisiana, Mo., within the area of the former Missouri Ordnance Works, on the site of the ammonia plant built during the war. It will be in operation, by the time this is published, at the rate of the production of 200 barrels gasoline daily.

It is expected to use between 200 and 300 tons of coal or lignite each day. Western coals, from Wyoming, Colorado, Utah, and similar areas, will be used initially because they are exceptionally amenable to hydrogenation. Eastern, Mid-Western, and southern coal will be used when the plant operation is smoothed out, and new problems are entirely solved.

These studies of hydrogenation operations will improve the thermal efficiency of the product, and appreciably lower the cost of gasoline and oil, it is predicted. The efficiencies are measured from heat in the coal to heat in oil produced. In German plants these efficiencies produced 30 per cent. It is forecast the American methods will increase these efficiencies more than 50 per cent.

It is estimated high-grade motor gasoline or aviation gasoline can be produced from coal for about 14c a gallon. This estimate omits the element of profits, but amortizes the plant cost in nine years. The cost may be further reduced another 3c to 5c by the yield of by-products.

Operation of a hydrogenation plant as large as 200 barrels capacity a day is entirely new in the United States. There is now in process of planning, by the contractor and the engineers connected with the government work, a coal hydrogenation plant with 30,000 barrels capacity a day, which would require 13,500 tons coal per day.

Plant establishment costs have been tentatively estimated: to produce gasoline and liquefied petroleum gases, at $55,670,000; to produce heavy fuel oil, at $63,000,000; and to produce light fuel with the by-product of gasoline and liquefied fuel gases, as high as $130,000,000. It is interesting to note the estimate that was made for the establishment of a plant in Utah to liquefy Utah coal to supply the fuel equivalent of 5,000 tons Utah coal delivered in Los Angeles. Here are the figures:

| | |
|---|---|
| Coal at plant near mine | $4.00 per ton |
| Electrical energy | 5 mills kwh. |
| Steam | 35c, 1,000 lbs. |
| Amortization | per annum, 9% |
| Gasoline and liquefied petroleum gas | per lb. 1c |
| Gas at 15c, 1,000 cu. ft. | |
| Tar acids | per lb. 5c |
| Cost of transportation via pipeline to Los Angeles, 100 mi. for light fuel, 4c per bbl. | |
| Cost transportation via pipeline to Los Angeles, 100 mi., heavy fuel oil, 8c per bbl. | |

The study showed a price differential of 30 per cent in favor of coal against fuel oil.

U. S. Bureau of Mines Coal-to-Oil Laboratories and Pilot Plants at Bruceton, Pa., make an impressive assembly of institutions. Their work has progressed sufficiently to justify the design of a Fischer-Tropsch plant to produce motor gasoline and Diesel fuel from coal. This plant will make at least 50 to 80 barrels per day. It will incorporate a new design in a coal-gasification unit, never used either in this country or abroad in any appreciable size.

The plant will have the newly developed Fischer-Tropsch converter unit, capable of enlargement to a production of 500 or more barrels synthetic liquid fuel. The German converters were able to make only 18 barrels per day at their best. This plant will produce a good grade of motor gasoline and an excellent Diesel fuel with cetane value between 80 and 100.

*(Continued on page 77)*

# How to Guard A Million Dollars

WHEN THE Valianos brothers completed installation of new equipment for the extraction of cocoanut oil from copra, they had an investment in machinery of more than a million dollars—machinery that is as specialized and hard to replace as it is expensive. They knew this equipment had to be protected with the most effective lubrication possible, so they turned to General Petroleum for a complete lubrication survey, and specifications of oils and greases to be used.

Gargoyle Industrial Oils and Greases have been used exclusively throughout this tremendous San Francisco plant, including six Anderson Expellers, filter presses, hundreds of feet of screw conveyors and three diesel-powered vacuum pumps. Mobil fuels and lubricants have been used in the company's heavy-duty trucks—with equally satisfactory performance as the industrial products.

More and more Pacific Coast firms have reduced maintenance costs and increased operating profits as the result of lube engineering surveys and recommendations by G. P.'s experienced engineers. It will pay you to investigate this service that is available for your equipment. Just get in touch with your nearest G. P. branch or distributor.

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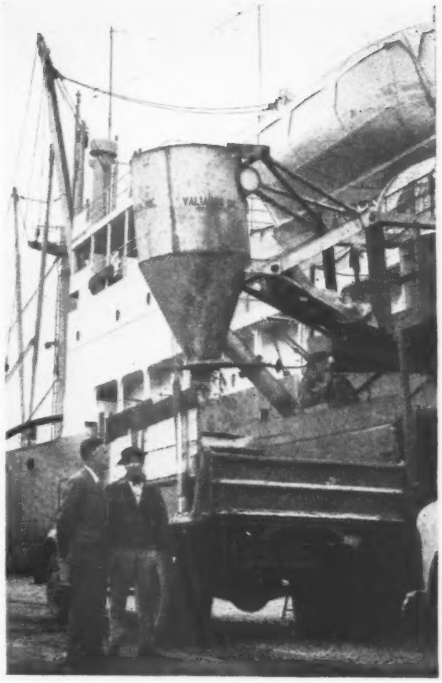

*{Above} Specially designed vacuum pumps unload copra from the Philippines. Each pump is powered by a 250 hp diesel, with a gasoline engine for auxiliary power.*

*{Below} Lee Valianos, E. S. Snetsinger of General Petroleum, and John Valianos discuss the lubrication problems of a battery of giant extractors.*

# WESTERNERS AT WORK...

## California

### Aircraft

**Harland E. Holman,** comptroller of Aviation Maintenance Corp., elected v.p. and treasurer and a member of the board of directors, succeeding **J. G. McKean,** resigned.

**David G. Shearer** appointed as Western Region Governmental Affairs representative for Trans World Airline with headquarters in Los Angeles.

E. E. Finch

Stephen Andrews

Cee Bee Chemical Company, Los Angeles manufacturer of engineered cleaning procedures and materials, have added **E. E. Finch** as maintenance engineer and **Stephen Andrews** as processing engineer to their Western aviation service staff.

**William A. Brechtel,** former manager Aircraft Parts Association, named head of newly established foreign service division, California Eastern Airways, Inc., Oakland airport.

Pacific Airmotive Corp. appointed **Victor J. Pollock** assistant to president. . . . **E. Van Vechten** appointed general operations manager.

### Government

**George L. Hillenbrand,** chief of Maritime Commission's Pacific Coast labor relations section, appointed commissioner on new Federal Mediation and Conciliation Service, San Francisco.

### Industrial Service

Los Angeles Chamber of Commerce names **W. J. Macfadyen,** former Southern California mgr. of California Manufacturers Ass'n, as sec. of metropolitan traffic and transit committee. Mr. Macfadyen succeeds **Harry Morrison,** who resigned to take position as mgr. of Downtown Businessmen's Ass'n.

**Robert H. Langner** will serve on staff of the World Trade Dept. of San Francisco Chamber of Commerce, succeeding **William B. Loomis,** who has resigned his position to re-enter sales engineering work.

**Harold D. Weber,** former general manager Oakland Chamber of Commerce, and for nearly 10 years secretary Metropolitan Oakland Area Committee, opens office as public relations and business counsel in Medical Arts Center building, Oakland.

### Oil

**J. Paul Getty** of Pacific Western Oil Corp. elected pres., succeeding **D. T. Staples,** who was elected executive v.p.

**Dwight H. Fortine,** former field petroleum engineer for Barnsdall Oil Co., appointed chief California geologist, succeeding **R. T. White,** resigned.

**Paul L. Fahrney** named general mgr. of operations of marketing dept. of Standard Oil Co. of California. He succeeds the late **Hollis B. Fairchild.**

### Steel

**John F. Shea** named mgr. for the San Pedro yard of Shipbuilding Division of Bethlehem Steel Company.

James E. Pollak

Ernest E. Brayshaw

Southwest Steel Rolling Mills, Los Angeles, makes the following appointments: **James E. Pollak** as mgr. of construction materials, **H. F. Hazel** as supt., and **Ernest E. Brayshaw** as works mgr.

### Manufacturing

**Philip F. Thayer,** former v.p. of Rheem Manufacturing Co., joined National Motor Bearing Co., Redwood City, as manager of manufacturing at California and Ohio plants.

**O. M. Larsen** appointed San Francisco manager of McBee Company.

Quinton Engineers, Ltd., Los Angeles, have added **Clay Colley** to their staff. Mr. Colley formerly was engineer for the Link-Belt Company, Pacific Division.

**J. B. Lee,** manufacturing division auditor at Emeryville plant of The Paraffine Companies, Inc., named plant mgr., replacing **Irving Hovgaard,** now manufacturing mgr. of the eastern division. **T. L. Melgaard,** supt. of linoleum dept., appointed assistant plant manager at Emeryville. **Frank Isola** and **R. L. Newman** named to fill executive positions in the new eastern floor covering divisions.

**Donald MacLean,** v.p., upped to executive v.p. of California & Hawaiian Sugar Refining Corp.; **William H. Stephens,** plant mgr. at Crockett refinery, made v.p. in charge of production, and **Alan H. Johnson** made assistant treas. and will continue as controller and assistant sec.


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Modernize Your Plant around this . . .

STEEL BELT CONVEYOR

PRE-ENGINEERED in a variety of standard models which are adaptable to your application.

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Easy to Install
and Maintain

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### Transportation

Merritt D. McCarl resigned as traffic mgr. of Port of Oakland to accept position of mgr. of Port of Redwood City.

John Kilpatrick, retired Army colonel and former supt. of water division at San Francisco port of embarkation, named assistant operating mgr. of American President Lines.

Frank Howland named general mgr. of Oceanic Trading Co.'s foreign freight forwarding dept., San Francisco.

### Research

Dr. J. E. Hobson, director of Armour Research Foundation of the Illinois Institute of Technology, named director of Stanford Research Institute, Palo Alto. Dr. Hobson succeeds Dr. William F. Talbot, now v.p. of Collier Co., food processing plant at Alviso.

### Colorado

Great Western Sugar Company has appointed the following men: Ed Gonyou, former supt. of Eaton factory and recently acting supt. at Longmont, to supt. at Loveland, succeeding H. H. Sandmann, retired; J. B. McDonald, supt. at Brighton, to supt. at Longmont, succeeding F. S. Treadway, retired; H. D. Burk, Sterling supt., to Brighton position; R. H. Myers, supt. at Fort Morgan, to succeed Burk at Sterling; N. J. Muscavitch, supt. at Brush, transferred to Fort Morgan; Frank Jones, assistant supt. at Fort Morgan, to the Brush position, and A. H. Nies, head pipefitter at Longmont, to master mechanic at Fort Lupton, succeeding Harry Faust, retired.

### Montana

Theodore R. Corbett named mgr. of manufacturing dept. of Carter Oil Company, succeeding Paul C. Shea, who goes to New York to be associated with the Esso Standard. At the same time it was announced that headquarters for all of Carter manufacturing operations, formerly in Tulsa, will be centered in Billings.

Herbert M. Aubele transferred from Ogden to Great Falls as master brewer for National Brewers, Inc., successors to Volk Brewery.

Col. Raymond F. Kitchingman (ret.), former commanding officer of Great Falls Army Air base, appointed mgr. of Chamber of Commerce at Grat Falls. He succeeds Robert Darling, who resigned to enter business for himself.

### Nevada

George Friedhoff of Reno named chairman of the Nevada Industrial Commission, replacing Daniel J. Sullivan who has resigned.

### Oregon

Tom L. Drake named general mgr. of manufacturing of Multnomah Iron Works, division of R. M. Wade & Co., Portland.

Angus McAllister, Portland, appointed supt. of Oregon division of Union Pacific Railroad, succeeding P. T. McCarthy, deceased.

Paul Morgan, Sweet Home, named mgr. of Willamette Valley Lumber Co. at Dallas. He is succeeded by Al Covert, Wrangell, Alaska, as resident mgr. at Sweet Home.

Harry Singlelman takes position of Louis Davis Ferguson, chief clerk of purchasing dept. of the Spokane, Portland & Seattle railway at Portland, who is retiring.

Albert Ureel takes the place of George E. Ron Durant as supt. at Foundation Worsted Mills, Portland.

*(Continued on page 58)*


MATERIAL HANDLING *News*

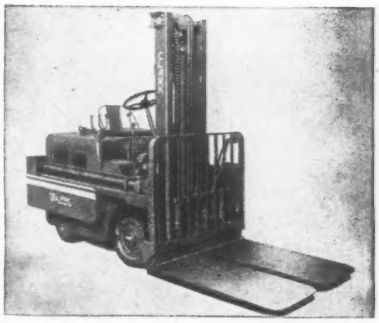
**SOLVED! — that familiar problem of transferring a load of material from a pallet to a common carrier at minimum cost — as a *unit instead of one piece at a time* . . . Clark's PUSHER Device attachment for Clark fork trucks *removes the load, retains the pallet.***

Alert management in many businesses, and yours may be one, has long sought for a quick, low-cost machine-power way to transfer material from pallets to common carriers when the pallets are not to be shipped. That problem has been permanently solved by the Clark Pusher Device.

**REMOVE LOAD — RETAIN PALLET**

A Clark fork truck equipped with this efficient attachment will perform all the normal functions of a fork truck—lifting loads, carrying them and tiering them; and in addition it unloads a unit load from the pallet *as a unit*, short-cutting the laborious piece-by-piece removal.

You'll undoubtedly think of many other ways to apply the Clark PUSHER's basic usefulness; and every new use to which you can put it means money in the pocket.



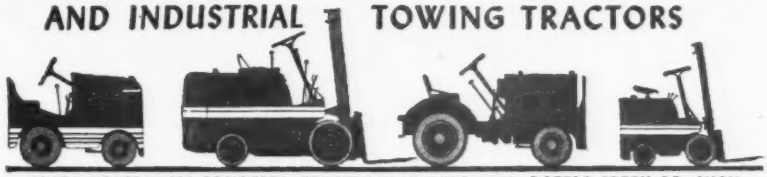
**PUSH + PULL = Pul-Pac**

Many features of the Clark PUSHER device were born of the exhaustive development work which created the Clark "Pul-Pac," sensation of both National Materials Handling Expositions. The "Pul-Pac" handles unit loads assembled on load-base sheets of corrugated paper, fiber board or similar material, disposable or durable, instead of on conventional pallets. Its rack has a clamping device which grips the projecting edge of the load-base sheet; and retraction of the rack draws the entire load onto the truck's carrying plates. At the load's destination the pusher removes it, base-sheet and all.

**FOR LOWER-COST HANDLING**

Both these revolutionary advancements are today saving big sums for businesses in many fields. Let Clark help you discover rich opportunities for savings in your own operations. You'll benefit your business when you CONSULT CLARK.

CLARK ELECTRIC AND GAS POWERED FORK TRUCKS AND INDUSTRIAL TOWING TRACTORS



CLARK EQUIPMENT COMPANY, TRUCTRACTOR DIVISION, BATTLE CREEK 28, MICH.
REPRESENTATIVES IN PRINCIPAL CITIES THROUGHOUT THE WORLD

# WESTERNERS AT WORK . . .

*(Continued from page 57)*

Frank Oleson named West Coast representative of the railroad materials division and export dept. of Georgia Hardwood Lumber Co., with headquarters at Portland.

## Utah

K. W. Yeats, Jr., Salt Lake City, made purchasing agent in charge of all purchasing and warehouse operations for the Great Falls, Mont.; Spokane, Wash.; Pocatello, Idaho, and Woods Cross refineries of the Wasatch Oil Company.

## Washington

C. E. Swanson of St. Paul, engineering mgr. of Northwest Airlines' staff at Boeing Airplane Company, transferred to head the Seattle plant, succeeding E. B. Curry, new general supt. of aircraft maintenance. . . . The engineering division announces the following appointments: Robert H. Jewett, formerly chief of preliminary design, to chief engineer - pilotless aircraft; succeeding Mr. Jewett is George C. Martin, formerly project engineer for Boeing XB-47 Stratojet bomber; Robert Plath to action project engineer for the XB-47. . . . Ralph B. Gilbert, assistant chief industrial engineer of Boeing Airplane Company, appointed staff assistant to John O. Yeasting, assistant to the president. Fred A. Yearian succeeds W. W. McCutcheon as supervisor in quality and inspection department; latter named chief inspector at Wichita, Kan., plant.

F. E. Baker and W. P. Overbeck, Richland, appointed assistant works mgrs. of Hanford atomic energy works, General Electric Co.

C. N. Reitz upped from v.p. and gen. mgr. of Superior Portland Cement, Inc., Seattle, to pres., succeeding the late E. P. Lucas. N. H. Nelson elected v.p. and general mgr.

Clyde W. Summerville, associate of the late William Pigott in Seattle Steel Company, elected pres. succeeding Mr. Pigott. He was formerly executive v.p. and mgr. of the company.

P. C. Mitchell elected pres. and general mgr. of Columbia Barge Lines, Inc., Pasco; Vincent W. Small, v.p.; A. V. Gibson, treas., and Wayne V. Jones, sec.

J. H. Poore promoted to v.p., assistant to the president of Northern Pacific Railway Co., Spokane.

Richard R. Whittemore named technical editor for Washington State College Division of Industrial Research, Pullman. He was formeriy industrial writer on The New Haven, Conn., Journal-Courier.

J. S. Baragar, Othello, appointed to Ellensburg Chamber of Commerce as executive sec., succeeding R. L. Bayne, who has resigned.

O. R. Cheatham of Augusta, Georgia, elected president of Washington Veneer and Springfield Plywood Corporation, Olympia.

The Long-Bell Lumber Company, Longview, announce the retirement of F. E. Stewart, who received a 50-year service award; W. T. Hamilton, associated with the company for 47 years, and C. B. Trotter, a 30-year veteran.

Arthur Larsen, inspector of Douglas fir plywood production, is the new chief inspector for Douglas Fir Plywood Ass'n.

## Wyoming

C. K. Faught, public relations man for Challenger Air Lines, named Wyoming state aeronautics director. He succeeds H. T. (Slim) Lewis of Cheyenne, who resigned.

## Associations Elect

John I. King of Bozeman elected pres. of Montana Creameries Ass'n. He advanced from the position of v.p. to succeed Ole Flaten of Havre. Howard Dissly of Lewistown named v.p. and Henry B. Hirsh of Butte re-elected sec.-treas.

W. H. Myers, pres. of Madison County Mining Ass'n and U. S. Grant Mining Co. at Virginia City, elected pres. of new Montana mining section of National Safety Council. W. P. Shelledy, pres. of Montana Phosphate Products Co. at Garrison, elected v.p.; Oscar A. Dingman, Montana School of Mines faculty, sec.-treas.; John L. Boardman, chairman of the bureau of safety of Anaconda Copper Mining Co. and general chairman of national mining section of safety council, appointed general program chairman.

How Pioneer Rubber helps Western Industry
"TIME AND TIDE"
Here's a Pioneer Rubber product that licks both time and tide. This flexible Pioneer hose handles copra from ship to shore *quickly* and economically *regardless* of changing tides. Pioneer Rubber has developed many types of such hose that speed the handling of grain, sugar, oil and other bulk commodities.
Meeting such demands of Western Industry's particular problems has been the specialty of Pioneer Rubber Mills for more than 60 years.
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B. T. Poxson of Creede re-elected pres. of the Colorado Mining Ass'n; the v. presidents are C. J. Abrams, John R. Hamm, J. L. Robison, Merrill E. Shoup and Harrison S. Cobb. C. O. Withrow re-elected treas. and Robert S. Palmer executive director.

F. W. Hutchinson elected to Committee on Research of the American Society of Heating and Ventilating Engineers. He is professor of mechanical engineering at the U. of California, Berkeley.

Miles Moore elected chairman of the International Pacific Salmon Fisheries Commission. Mr. Moore is the Washington state director of fisheries.

Harold F. Silver of Silver Engineering Works re-elected as pres. of the Mountain States Employers Council, with Elmer H. Peterson of Rio Grande Fuel Co. as v.p., Palmer L. Burch of Horace W. Bennett Realty Co. as treas., and James P. Logan, managing director of Employers Council, as sec.

Earle Bigler, mgr. of Seattle - Tacoma airport at Bow Lake, heads Seattle chapter of National Aeronautic Ass'n, succeeding James H. Campbell. Greg. McDonald named v.p. and George Gropp, sec.-treas.

Thomas J. Bannan elected a national v.p. of National Association of Manufacturers. Mr. Bannan is pres. of Western Gear Works, a Seattle firm with plants also in Los Angeles and San Francisco.

Swift Berry, mgr. of Michigan - California Lumber Co., Camino, Calif., re-elected pres. of Pacific Division, National Wooden Box Ass'n. C. T. Gray, mgr. of Stockton Box Co., Stockton, Calif., re-elected v.p.; J. F. O'Brien, treas. of California Pine Box Distributors, re-named treas., and Jack H. Dobbin, sec.-mgr. Mr. Dobbin has also been re-named pres. of The Wooden Box Institute, San Francisco.

E. J. Watson, Mount Vernon, Wash., is new pres. of Northwest Canners Ass'n; T. E. McCaffray, Seattle, elected first v.p.; George Martin, Milton, Oregon, second v.p., and C. R. Tulley, Portland, reappointed executive v.p.

E. N. McDevitt re-elected chairman of the district on board of Western Pine Ass'n; M. E. Boorman re-elected sec.

The Montana Lumber Manufacturing Ass'n named G. A. Miller, pres.; H. C. Karow, v.p.; H. J. Hawkins, treas., and M. E. Boorman, sec.

Western Frozen Food Processors Ass'n named James O. Dempsey of Dempsey-Hudson Packing Co., Salinas, Calif., as pres.; Mel. K. Spiegl of Spiegl Foods Co., Salinas, as v.p., and C. J. Collins, Frostcraft Packing Co., San Jose, as treas. A. H. Harrison, San Francisco, re-elected sec. and managing director.

Dr. E. W. D. Huffman of Denver's Huffman Microanalytical Laboratories elected chairman of Colorado section, American Chemical Society, succeeding Dr. Bernard B. Longwell of Colorado University's school of medicine.

The Raw Materials Survey Directors of Oregon re-elected the following officers: General Thomas M. Robins, pres.; Frederick Greenwood, v.p. and treas., and Chester K. Sterrett, secretary.

Waterfront Employers of Washington re-elected the following officers: M. G. Ringenberg, pres.; William Semar, general mgr. of Northland Transportation Co., v.p., and Darrell Cornell, sec. J. Eldon Opheim elected treas.

Pacific American Shipowners Ass'n elected J. B. Bryan, pres.; T. G. Plant and W. L. C. Brown, v. presidents; R. M. Pierce, sec., and K. F. Saysette, treas.


# New Colson Easload Truck

ON

## General Industrial Pneumatics

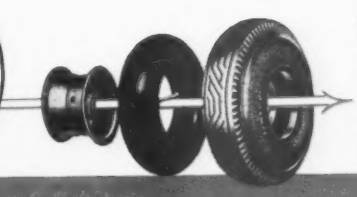
SAVES TIME • MONEY • LABOR

MOVES LOADS EASIER, FASTER

New kind of truck takes the load off the worker, puts it on the wheels. Wheels remain locked in forward position until released by foot pedal. With wheels forward truck can slide on tubular handles.

*Manufactured by Colson Equipment & Supply Co. 1317 Willow St. Los Angeles 13*

When released from forward position wheels shift into rear position where they lock to carry the load. Small wheels under nose plate make truck and load easy to handle. 10-inch rubber tired wheels support heaviest appliances.




General Industrial Pneumatic tires are available either by themselves or in complete tire-tube-wheel assemblies. Write for the new catalog that tells you how to save money with General Industrial Pneumatics.

THE GENERAL TIRE & RUBBER CO.

Akron, Ohio

# Steel Prices; Consumer Resistance More Alarming Than Market Drop

***Market shakeup had no spectacular results, but increased steel costs could not be passed to buyer; and the housewife has run out of money.***

LOS ANGELES — Economic seismographs here, as elsewhere, registered a sharp and sustained disturbance in February, originating at an epicenter approximately 2,000 miles from Los Angeles — presumably in the area around the Chicago Board of Trade.

Long inured to minor earthquakes, however, native sons maintained a calm attitude, doubtless made considerably calmer by the fact that this time the shock centered somewhere else.

By early March, significance of the precipitous break in commodity prices had become quite cloudy, since it failed to produce the expected panic psychology. As one industrialist put it, "It's a funny market panic that causes every one to say what a good thing it is."

Unlike the wholesale liquidation that shook the country's foundations in 1929, the recent shock so far has brought no spectacular cancellations of orders, no sudden drying up of credit, no scramble to unload unwieldy investments. Immediate effect rather has been to cause more people to crawl into their shells and wait to see what happens next.

Over a longer period, this attitude automatically should have its effect in slowing up advance orders for many types of products, especially in the consumer goods field. Allowing for the time required for a slowdown at the retail level to back up to the mill, this means that perhaps six to eight months may be required for fears to be translated into actuality — lacking, that is, the panic psychology that presages actual economic collapse.

Every one expects, of course, that a big turn must come before long in the inflationary road post-war business has been travelling, but the commodity price break so far has had little effect on plans of local industrialists. Pipelines of their key materials still are so far from full that there is no reason for wholesale cancellation.

They are more concerned about (1) the recent rise in steel prices, which may bring cost increases that cannot be passed along to the buyer, and (2) growing consumer resistance, stemming from the fact that many people find it difficult to eat, pay their rent, and still buy the other goods they would like to have. This very real threat to manufacturers' markets lies behind the apparent near-saturation of the appliance market, the slowing of tire purchases, and the poor showings at theater box-offices.

### Department Store Business

A more impressive, though less conspicuous, barometer is the trend of local department store business, which after a record-breaking Christmas season has struck a sharp down-trend, carrying sales recently as much as 12 per cent below last year's dollar figure, or even more in terms of units of goods sold. Unemployment, too, is growing, as many women who look for jobs to earn holiday money have stayed in the labor market because the family budget can hardly stand the strain of current prices.

As one large wholesale food distributor bluntly expressed it, "The American housewife simply has run out of money."

This is the real, grass-roots basis for the current complacency over a record-breaking slump in commodities. If the household budget can again afford its normal allowance for purchase of the products needed in the home, instead of being drained so heavily for food and housing, there still is hope of cushioning what otherwise could develop into a major depression affecting all branches of the economy.

A teapot tempest has bubbled up vigorously over the Department of Commerce's action reinstating controls on shipments to Europe, as authorized by Congress. It stems mainly from a fairly well-founded suspicion that the regulation may curtail the amount of business the West may derive from U. S. spending under the Marshall plan.

Some local interests take particular exception to provisions under which permits to export certain goods to Europe will be given to those U. S. firms charging lowest prices. These price provisions are part of the anti-inflation bill passed at the year's end.

Congressional support stemmed from the desire to see that U. S. taxpayers' money, earmarked for European aid, shall not be spent to finance purchases at the exorbitant prices some scarce goods have been bringing in world markets. It rested also on the desire to make sure that the items most needed in western Europe should not be diverted to Soviet-controlled countries. Without licensing of all shipments, there was no way of knowing where goods might be shipped — as has been proved by some sensational developments recently in the news.

Opposition has come partly from a hearty distaste for Government red-tape, partly from the idea that Western industry ought not to have to compete at the same prices as eastern firms, since shipping charges, wage differentials, and other geographic factors naturally put the West at a disadvantage.

### Penalize Exporters

Merchant exporters, who must buy from U. S. manufacturers and necessarily re-sell at a mark-up, likewise may be penalized somewhat, although competitive bidding will apply only when a great number of firms wish to export the same commodity and supply conditions are comparable.

The manufacturer who sells direct to foreign buyers automatically will be in a better position. On the other hand, the hateful "grandfather clause" which, as was true with some wartime controls, kept

*(Continued on page 62)*

*REPORTS*
**MITCHELL MFG. CO.**
**CHICAGO**

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# Steel Prices; Consumer Resistance

*(Continued from page 60)*

business exclusively in the hands of those firms in operation before the war — thus excluding the West's countless new enterprises — has been largely eliminated from the new controls.

Probably the most complacent about the whole situation are those who sell only in the domestic market and have been nettled at current stories of steel, lumber, pipe, and other bottleneck items shipped abroad. They know that the most active operators in the "gray" market for steel, for instance, have been speculators whose outrageous price demands have been fortified by the knowledge that foreign buyers were willing to pay even more for the precious materials.

To encourage gray market activities here with the help of taxpayers' money does not sound like good business to these people, who know, too, that such piratical activities give all American business men a bad name in world markets.

### Hollywood Open House

General Motors' new Chevrolet assembly plant at Van Nuys in the much-crooned-over San Fernando Valley celebrated inauguration of its passenger-car production line with a Hollywoodian four-day "open house." There were parades, speeches, a visit by the Governor. Streets of valley communities were well draped with bunting. Even local Ford agencies flew banners inscribed, "Welcome, Chevrolet!" Thousands of natives streamed through the two-story plant, trudged along the 3½ miles of overhead conveyor, and hungrily watched the twin production lines discharge a new passenger car every three minutes and a truck five times each hour.

The Van Nuys plant, rated one of the nation's most modern, owes its two-story design to many small feeder lines required in automobile assembly. By grouping some sub-assembly lines on the second floor, they can be fed directly down to the main line with a minimum of handling. The "suspended assembly" conveyor system is the first in a West Coast auto plant. The car frame is hung on an assembly buck and travels at a convenient height which is supposed to reduce appreciably the physical effort of assembly, since workers no longer have to stretch or bend for tasks involved in building up an automobile.

The current production rate at Chevrolet represents only about half of rated capacity, mainly because of the shortage of sheet steel. Cold weather slowdowns in eastern plants also have tied up supply of some parts for other motor makers, recently causing the Buick-Oldsmobile plant at Southgate to fly 14,000 pounds of components overnight from Detroit so the production line could roll next morning.

This hand-to-mouth supply situation has caused some cutbacks in automotive employment and has kept the newer operators from getting into high gear. Nash still is waiting the go-ahead. Kaiser-Frazer, for the time being, has converted its Long Beach property into a major distributive point for its cars. Tooling-up there for assembly work is reported to have been shoved indefinitely into the future because of the much-publicized snag struck by underwriters on the new K-F stock issue, part of whose proceeds were supposed to have financed this expansion.

Using as a text the fact that the nine automobile assembly plants in southern California will produce 600,000 cars annually, as against a prewar 154,000 cars from only five plants, Jim Bone, industrial expert of the Los Angeles Chamber of Commerce, blueprinted the tangible results of attracting a new manufacturing industry to the West Coast. A factory employing 150 workers, he said, will generate $244,000,000 in retail trade annually—enough to support 24 professional people, 33 retail outlets, 18 places of amusement. It will finance the operation of 320 automobiles and support 393 homes.

Just how, short of wholesale bigamy, this last figure could be sustained may have mystified some of his listeners, but Bone went on with indisputable proof that the West is building bone and sinew of a permanent industrial economy.

In the past three years, he said, $364,000,000 was spent on industrial expansion in the Los Angeles area alone, about half of it devoted to construction of 704 new factories. Production worker employment has increased to 240,000, or double the prewar figure. All this, he argues, calls for increased activity in apprentice training—and it explains also the reason for the Los Angeles Chamber's indefatigable activity aimed at luring new industries westward.

### Four-Alarm Panic

John A. McCone, formerly Cal-Ship president and now a member of President Truman's five-man Air Policy Commission, created a four-alarm panic here when he cited some features of the Commission's report generally overlooked in initial press dispatches. These features were simply the well-known fact that military strategy would favor dispersal of the aircraft industry over the country, rather than its present concentration in the more-exposed Seattle, Los Angeles and Long Island areas.

As the report phrased it, "It is regrettable that the wartime plant dispersion was not maintained. Our reserve plants (government-owned but now closed) are still well dispersed. If in response to a mobilization order, reserve plants are brought into production, the total aircraft manufacturing plant pattern would represent an effective geographical dispersal. . . . If, on the other hand, an attack should precede activation of the reserve plants, the industry will offer highly concentrated targets. We recommend that in future plant expansion, the services avoid further concentration in these areas wherever possible."

Jitters from local industry, already supersensitive on this point, brought a quick follow-up pointing out that the Commission was talking about limiting expansion, rather than closing of the major companies, most of whose home plants are located on the West Coast. McCone added that the Commission has recommended a half-billion-dollar increase in the 1948 national defense budget and a 2¼-billion-dollar increase for 1949. These figures would mean about three billion dollars more for building up the Air Force. At present cost of planes, however, even this impressive amount would not be enough to cause many government-owned plants to blossom out again in the Mid-West—at least, not if the intention is to keep the aircraft industry running at a profitable level of operation.

### ATA Figures

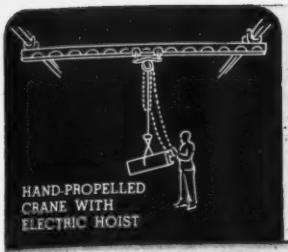
An index of the business so far provided by the airlines for manufacturers may be read in the Air Transport Association's figures: At a year's end, 961 planes were in domestic flight service, as against 809 12 months earlier. Seating capacity rose from 23,513 to 31,800, indicating perhaps that in view of recent airline earnings, now creeping painfully back above the break-even point, enough "rolling stock" soon should be on hand to take care of present business. The air carriers still have on order or on option some 300 planes with seating capacity of 14,500.

The international network of air lanes, however, is providing a promising market for U. S. plane builders. More than 95 per cent of all foreign airlines are using transport planes built in this country, a Pan American Airways official reported on return from a 23,000-mile world inspection tour. He said many foreign countries are creating tourist facilities that are rapidly approaching prewar standards.

"These countries may not have sufficient for themselves, but their need of the American dollar is so acute today that the visitor will find ample and even luxurious accommodations in food, lodging, and transportation."

Both domestic and world air travel could grow at a much faster pace if such a flood of air crash news did not constantly reach public ears. Some encouragement along this line comes from aircraft maker John K. Northrop, who predicts that air accidents probably can be cut 75 per cent as soon as adaptations of wartime radar and radar-type altimeters have been installed

*(Continued on page 64)*

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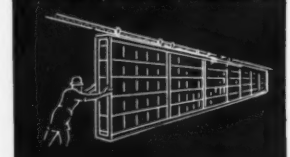

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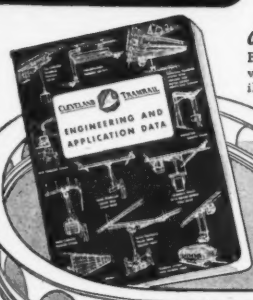


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**CLEVELAND TRAMRAIL**
**OVERHEAD MATERIALS HANDLING EQUIPMENT**

*(Continued from page 62)*

on commercial air liners. Most of the lines will have their ships so equipped within the next year, he said.

Mining is booming again in Arizona. Last year the state's $180,000,000 output of copper, gold, silver, lead, and zinc led the nation in non-ferrous metal production. Reading the highest total in 30 years, it served to regain for mining its historic position as Arizona's No. 1 industry, which in recent years has been topped by agriculture.

Zinc and lead production, particularly, has been expanding rapidly and is running at 12 times the rate of a decade ago. Gold and silver mining is reviving slightly but is still far below normal because of today's high costs and the fixed price of gold, which no longer appears high in terms of the inflated dollar.

Last year, 78 per cent of the gold and 54 per cent of the silver was a by-product incidental to the copper ore processed in Arizona's six big copper smelters. The Valley National Bank of Phoenix points out that, curiously enough, the mining industry's present postwar expansion is just the reverse of the situation after World War I, when prices and output took a steep dive and mining went into the doldrums.

### New Anti-Freeze

A new permanent anti-freeze solution which remains in a liquid state at —95°F will be manufactured at Colorado Springs by Welch Industries of that city. R. R. Welch, president of the company, states that it has no corrosive action on either metal or rubber and thus cannot harm circulating systems.

### Refinery Started

Construction is to start in March on the $5,000,000 refinery of Standard Oil Company of California to be built at North Salt Lake. It will be the western terminus of a $5,000,000 pipeline that Standard will build this spring from the Rangely oil field in western Colorado.

### Let Gold Find Its Own Value

A novel idea as to reviving gold coinage was advanced by Donald H. McLaughlin of San Francisco, president of the Homestake Mining Co. of South Dakota, the largest gold mine in the United States, at the Colorado Mining Association convention at Denver in February.

He proposed that newly mined gold be made into coin stamped only with the weight of gold content, not with a dollar value. Then this coin would be put into circulation and allowed to find its own ratio, which he predicted would be above the $35 an ounce now fixed by the government.

### How to Rig Continuous Lacquer Bath

In order to maintain a steady production flow and still apply six coats of lacquer to certain fish lines, engineers of the Sunset Line and Twine Company in Petaluma, California, rigged a continuous flow lacquer bath. The line comes from a reel into the first immersion and then is threaded vertically to the top of the room, where it runs over a polished steel bar and returns to the lacquer bath.

By the time the line reaches the bar, the lacquer has dried sufficiently to avoid rub-off, and by the time it returns for the second immersion the second coat will take. This simple rigging is repeated for the six coats and the reel of finished line is then all ready for the packaging department.

### Institute of Radio Engineers Convention

The West Coast convention of the Institute of Radio Engineers will be held in conjunction with the West Coast Electronic Manufacturers convention at the Biltmore Hotel, Los Angeles, September 30 to October 3. Lloyd Sigmon, chief engineer of radio station KMPC, Los Angeles, is convention chairman, with J. Fiske of Westinghouse, vice chairman, and William U. Dent, of Westinghouse, papers chairman.


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at every drinking fountain and spotted conspicuously about your plant remind workers to take salt. Fairway Dispensers keep salt clean. Encourage your help to take salt regularly by making it attractive and available in Fairway Dispensers.

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SAN FRANCISCO — Northern California seems to be in for a temporary and unavoidable postwar bump caused by the critical electric power shortage. This shortage is due to two dry winters in succession, the present season being the dryest in half a century or more, aggravated by the increasing strain put on existing electrical facilities by the great growth of population, plus the shortages of materials and equipment needed to enlarge hydro-electric installations.

Early in March plans were being worked out to conserve electricity as much as possible by adopting daylight saving, eliminating display lighting, curtailing domestic and commercial usage, and rationing agricultural and industrial supply. Late rains will alleviate the situation temporarily, as farmers have been pumping ever since January through the months when the Pacific Gas & Electric Company ordinarily is building up storage in its mountain reservoirs instead of sending it through its generating stations to create electricity. Over the long pull, however, it is likely that the situation will become worse before the summer ends. Curtailment of tree and ground crops may become highly serious.

How to distribute the electric light and power equitably is a complicated problem. For example, 84 members of the California Manufacturers Association wanted the 20 per cent reduction imposed by the California Public Utilities Commission spread over a five-day period. Fifty-six of the total 300 polled preferred a one-day shut-down each week. Some establishments, like blast furnaces and electro-chemical plants, cannot afford to shut down at all.

Early curtailments were already beginning to increase the unemployment load, with indications that the problem would be a serious one before the end of summer.

Pacific Gas & Electric Co. are in the midst of a big expansion program, but delays in getting materials and equipment have put them considerably behind schedule, while the drought and steadily increasing population combined to advance the needs unexpectedly. They have a 235,000 hp. steam plant near Bakersfield scheduled to go into operation later this spring, and 133,000 hp. of hydro coming in this summer at the Electra dam on the Mokelumne with other developments to be completed next year and in 1950.

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# Transportation Picture Improves in Rockies

***Burlington R.R. shows amazing life and vitality with new developments for fast freight service. Air taxi business booms.***

DENVER—Wonder of wonders, the transportation picture up and down the Rocky Mountain region is improving. The mountain area's major handicap to industrial advancement — lack of adequate modern transportation — now is getting the sort of attention that produces results.

The Burlington railroad's freight division is showing amazing life and vitality. This is demonstrated by a number of recent developments, all showing truly commendable enterprise.

First of these was the establishment of fast freight service for special trains of oil tank cars from the Rocky Mountain oil fields centering in Wyoming to Omaha and Council Bluffs. One long trainload pulls out of Casper every day, picking up more cars at stations down the line.

All these loaded oil cars are hurried to the big refining and marketing points along the Missouri River. And every day another special trainload is made up of empty tank cars at Omaha, Council Bluffs and way stations. These are rushed back up the line to Wyoming loading docks to be filled with more petroleum. With scarcity of tank cars long acknowledged to be a major cause of the oil shortage, this double-quick service of getting empties back into service without an hour's delay is one of the finest things in American railroading today.

Then there is the new package freight system the Burlington has introduced on its run north of Denver into Casper and on to Billings and Great Falls, Montana. Every day freight is carted to the Burlington freight depot in Denver for fast shipment to Casper, and the freight deposited there by four o'clock moves northward within a few hours as part of that evening's passenger train.

By the next morning at eight, it is halfway across Wyoming at Casper. Passengers have complained for years about this train, which is pretty slow as a passenger train, but as a freight train it is phenomenally fast, for so long a run.

A similar freight-on-passenger-train-schedule deal is offered by the Burlington via Alliance, Nebraska, and into Billings and Great Falls, Montana. Here, too, the schedule northward out of Denver is really fast.

The freight car or two that is sandwiched into the regular passenger train is painted to harmonize with the rest of the train. Of course it is still a freight car, but one with the wings of an angel.

Perhaps this symbolizes a significant turn of events. It might even presage reformation of the passenger train situation northward from Denver. Nothing less than a streamliner from Denver to Great Falls via Cheyenne, Casper and Billings will Satisfy the "natives" along the route. They stay away from the trains now, except in utter emergencies; for that reason the railroad's statisticians can't see where the passenger revenue to make a streamliner pay possibly could come from. There are good answers, and it may not be long before the Burlington's high command will be willing to sit down with mountain states businessmen to figure it out.

Meanwhile, a Denver charter airline operating out of Combs Field is doing a land-office business with flights priced a-la-taxicab on the zone system. Charts with concentric circles radiating out from Denver show a dozen zones, each with a flat price. For example, an oil man can see from the chart that a flight from Denver to Rangely oil field and back before dark the same day will cost him $77.00, and he can take along a couple of friends or freight up to 400 pounds! That is a long one. Most flights are much shorter and much cheaper, but the zone idea is one more evidence that transportation by air is in tune with industry's needs.

### Building's Shot-in-the-Arm

Denver's million-dollar building institute is turning out to be one of America's most popular tricks in the building trades field. The Denver Chamber of Commerce is proud of the national attention being accorded its novel downtown center for displays of building products by scores of manufacturers and distributors.

The University of Denver's school of architecture now is participating in the plan, which will include an ultra-modern three-story building with 60,000 sq. ft. of space for displays and quarters of architects, manufacturers, contractors, home financing institutions and related enterprises connected with the construction field. Consultants especially trained to aid prospective home-builders will show visitors the latest products for building and give advice on building regulations, zoning, residential trends and other problems confronting the builder.

This cooperative plan is said to include many new merchandising techniques never before used in any city. Several other communities have sent observers to study the Denver plan, and it now appears that there may be many building institutes throughout the country, as outgrowths of the one in Denver.

### Paging a Menace

Western oil and gas men, suddenly confronted with the clamor of outraged customers who can't get enough fuel, are wishing they had a John L. Lewis or some figure equally repulsive in the public mind, to chase away some of the business. They point out that much of the "trouble" came when strike after strike by the coal miners caused a wholesale rush away from coal to oils and natural gas. But the sudden demand from that quarter, coming on top of unprecedented demands from all the other customers, has put the oil and gas people in an uncomfortable spot.

In some quarters there is evidence that high prices for fuel oil will have the same effect as a good look at John L. Lewis' eyebrows — a sudden desire to go in the opposite direction. Meanwhile, the oil and gas industries are stepping up production, pipeline and refining facilities to handle the demand more satisfactorily.

### Counting Noses Again

A cold estimate based on careful analysis made by a large business institution for the purpose of planning its future expansion, predicts the 1950 population of Denver as 415,000 and the Denver Metropolitan Area as 521,800.

During the 10 years 1930 to 1940, Denver's population increased 12 per cent and the metropolitan area increased 16.21 per cent.

### Company Hospital Goes

Changing patterns in industrial corporation's services to employees were noted recently when the Colorado Fuel & Iron Corporation gave a huge hospital away. The Corwin hospital at Pueblo, named for a former chief surgeon of the company, was designed primarily to provide hospitalization for employees and their dependents. But it had outgrown the company and was serving the growing city as well. And the C.F.&I. had outgrown Pueblo, with its operations now scattered from coast to coast.

Employee benefit programs in other plants didn't fit the Corwin hospital scheme of things any longer. So board chairman Charles Allen, Jr., handed the whole hospital on a silver platter to the Sisters of Charity, the order whose successful management is widely known and whose institutions include Mercy hospital at Denver and Glockner-Penrose sanitarium in Colorado Springs. "The old order changeth...."

### Arkansas Valley Boom?

Something is cooking in southeastern Colorado, which soon will be getting a flood of well-managed water from the other side of the mountains. The huge project has engendered the usual squawks from the side of the mountains losing the water, spiced this time by national tirades from fishermen who fear the wondrous trout catching on the Gunnison will be imperiled by the diversion program.

But the world moves on, and everything from Leadville down to the Kansas border will be transformed, presently. More lakes, more power plants, more lowland reservoirs and incredibly expanded irrigation areas with resultant effects on purchasing power all over the area — these are on the way. The southern end of the Pike's Peak country now has a new lease on life, like that won by northeastern Colorado through the Big Thompson trans-mountain diversion plan, which also uses Pacific slope water to transform the arid eastern slope into one of those lands "flowing with milk and honey."

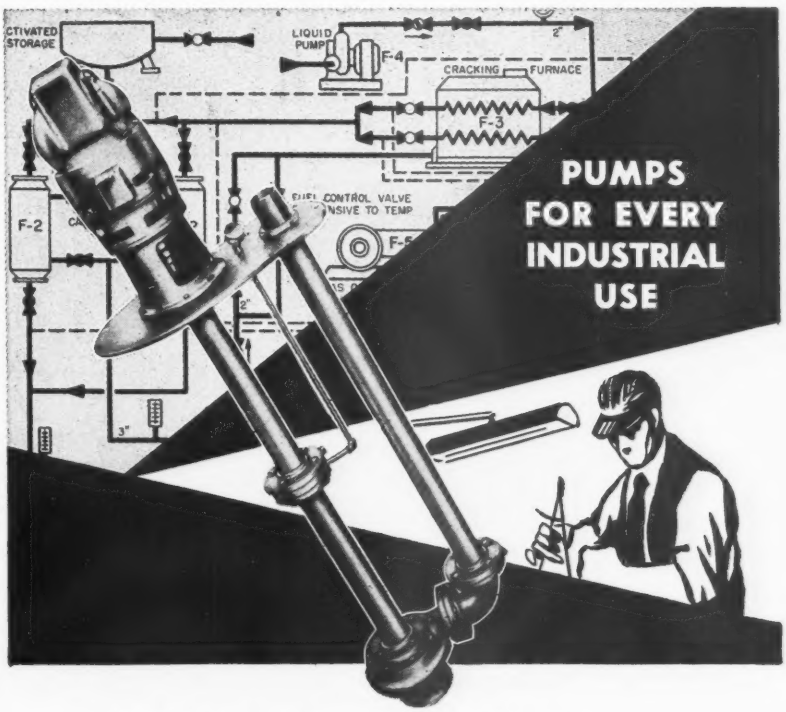
### Western Slope Expansion

Colorado's sleeping giant is the raw materials treasure house on the Western slope of the Rockies. It seems to be waking up now. For a long time its metals have been famous, from the gold camps of the San Juan Triangle to the mountain of molly-be-damned where Climax Molybdenum extracts most of America's store of the treasured metal. The area has one really great oil field, at Rangely, and others on the way to becoming of considerable consequence.

Current attention is centered on the recent find of a deposit containing 100,000,000 tons of the best coking coal America has uncovered in years. This is Gunnison County's Coal Creek district. Very little of this land has been taken up, but one operator, the Utah Fuel Company, is moving in an enginering staff and reports that it is ready to spend as much as $5,000,000 to develop the new coal field.

Grand Junction, the area's principal city and distributing point, is pleased as punch to be the site for one of the Atomic Energy Commission's enterprises — headquarters for the exploratory branch, to point up search and development work in the carnotite fields and other possible sources of uranium, vanadium and other fissionable stuffs.

At Rifle the government's shale oil demonstration plant is very much in the public eye, with a new refinery now being added so that it soon can be learned just what shale oil will be good for. From Tulsa in May, when the International Petroleum Exposition will be held, oil men from all over the world will fly to Rifle in 100 airborne field trips to inspect the shale oil operation. If Secretary Krug has his way, Rifle will become another Pittsburgh with the next 10 years.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# Canadian National Gas Planned for Northwest

***Application filed for the construction of a pipe line from Alberta, Canada, to Columbia River and Puget Sound area.***

PACIFIC NORTHWEST—Plans for supplying this fuel-short area with natural gas from oil and gas fields in the province of Alberta, Canada, appear to be taking definite shape after more than a year spent in preliminary negotiations and surveys.

The Northwest Natural Gas Co. in February filed application with the Federal Power Commission for a certificate of public convenience and necessity as a prerequisite for construction of the pipe line between the Canadian fields and the major consuming areas on the Columbia River and Puget Sound.

The plant which will be required to transport the gas is estimated to cost $78,000,000. Altogether about 1,474 miles of pipe line will be needed, of which 864 miles will be 24 in. in diameter. The remainder will be smaller diameters for the collection system in Canada and branch distribution lines in Canada and the United States.

Principal sources of gas to supply the system will be three fields in the Canadian province, one near Wainwright east and south of Edmonton, another near Bow Lake west and south of Medicine Hat, and a third near Millarville south and west of Calgary. Feeder lines from the first two fields would join at Foremost, east of Lethbridge, where the main 24-in. line inlet would be located.

The line would run through southern Alberta, joined at Pincher Creek by the third feeder, to Kingsgate, British Columbia, near the Idaho-Montana line where it would enter the United States. The line would continue through northern Idaho and into eastern Washington to Spokane. Thence it would run south to Walla Walla and east to Pasco, Wash., from which it would follow the Columbia River west to Vancouver and Portland. At Vancouver the line would turn north to serve Chehalis, Centralia, Olympia, Tacoma, and Seattle where the 24-in. line would terminate.

A smaller 18-in. diameter distribution line would continue north through Everett and Bellingham, Wash., to Vancouver, B. C. On the main line four pumping stations spaced at 170-mile intervals would maintain a pressure of 750 lbs. per sq. in., which would be sufficient to permit a maximum daily delivery of 290,000,000 cu. ft. of gas. The estimated average daily delivery is 153,424,000 cu. ft.

Surveys of the Alberta gas fields have indicated that reserves there are sufficient to guarantee a 30-year supply of fuel to the Pacific Northwest without affecting present or future Canadian needs. Rate structures proposed by Northwest Natural Gas Co. provide for a 25-year pay-out schedule on the basis of the estimated average daily delivery.

Many of the major problems opposing construction of the line have already been overcome, but there are still sufficient obstacles that construction is not foreseen before 1949 or 1950, with deliveries to begin about a year later. The general scheme is one which has been under consideration for some time by a number of men interested in the industrial development of the Northwest, and who realized that a source of fuel or heat was a major requirement to achieve that development.

### Montana Ruled Out

Utilization of northern Montana fields as a source of natural gas was ruled out early in the investigations, as known reserves there are not sufficient to insure the minimum 20-year supply required to make possible return of construction costs. Canadian authorities have been reported as reluctant to grant permission for export of the gas to the United States unless definite proof were available that Canadian requirements could be met first. A special survey of Alberta reserves last summer apparently assured the Canadian government that the supply was adequate for this purpose.

One of the early requirements, reportedly set by the Canadian government during the preliminary discussions, was that the main pipe line must go from the fields directly west to Vancouver from which point it could be turned south to serve Seattle and Portland. While this may have been reasonable from an economic standpoint as far as Canada was concerned (some 213,175 tons of steel will be required in the construction), it might have effectively prevented construction of the line at all because much of the terrain of eastern British Columbia and western Alberta is totally inaccessible.

### To Buy Natural Gas

Commercial gas producers on the Coast have agreed to purchase the natural product for distribution to their present and future customers. Existing gas manufacturing plants, which use California crude oil as a raw material, will probably be retained as chemical plants and as standbys in event of failure on the line. Portland Gas & Coke Co. and Seattle Gas Co. have both spent considerable sums in the past few years to increase the production capacity of their respective plants.

Paul B. McKee, president of the Portland Gas & Coke Co., speaking of the proposed project, said that, "a supply of natural gas would be a resource of obvious advantage to the development of the area. Such a project is a big undertaking, but I expect to see this area supplied with natural gas eventually."

N. Henry Gellert, president of Seattle Gas Co., in commenting on the proposal, said, "There is nothing certain about this yet, but it is so feasible, so promising, and so badly needed that we want to do everything we can to spread it."

While nothing has been said concerning the rate structure under which the natural gas would be sold, it seems logical that freeing of the Northwest from the rising price of California crude would be a major step forward in improving the fuel economy of the area. Seattle Gas Co. was just recently granted permission to raise rates

an average of more than 16 per cent, based largely on the increasing price of raw materials. Some sources have indicated that no immediate prospect of decreased prices might be expected as the result of importing natural gas, such a result might well occur in the future.

In the Northwest nearly everyone familiar with the proposal is an enthusiastic supporter. About the only objections which have been raised have come from coal producers in Washington. While the state ranks fourth in undeveloped coal resources known to exist in the 48 states, the history of coal mining has been one of continual decreasing activity over the period of the past 20 years. The major quantities of coal deposits are of sub-bituminous quality, and mining costs have been so high that local coal has for the most part been unable to compete with coal shipped from Utah and Wyoming.

### Raw Materials Survey

The Raw Materials Survey, sponsored by the chambers of commerce and individual industries of Oregon and the lower Columbia River area, is taking an increasingly active interest in the development of mineral resources of the Northwest. One of the latest productions of the survey has been Information Circular No. 2 which is a memorandum in support of legislation now pending in Congress for modification of laws governing mineral development of Oregon and California railroad lands and Coos Bay wagon road lands in western Oregon.

Prepared by A. O. Bartell, who several months ago succeeded R. J. Anderson as managing engineer of the survey, the memorandum points out that the lands (commonly referred to as O&C lands) represent about 2,500,000 acres, which is roughly one-third of all lands west of the Cascade Mountains in Oregon. The lands are under the jurisdiction of the Interior Department of the federal government and up to the present time development of mineral resources has been actively discouraged.

Senator Guy Cordon and Representative Harris Ellsworth of Oregon have introduced companion bills in Congress which would open the O&C lands for mineral entry on the same basis as other government-owned land in the state. Among the mineral resources known, or confidently believed to exist on O&C lands, the circular lists a high alumina clay suitable for refractories, bauxite, barite, bentonite, limestone, magnesite, nickel, and talc.

The bauxite is the high iron content aluminum ore which the Aluminum Company of America has been actively prospecting for the past several years in Washington, Columbia and Multnomah Counties. The nickel is found in a serpentine peridotite formation in the vicinity of Riddle. Estimated reserves are set at more than 6,000,000 tons of ore ranging from one to two per cent of nickel content. Research

*(Continued on page 72)*

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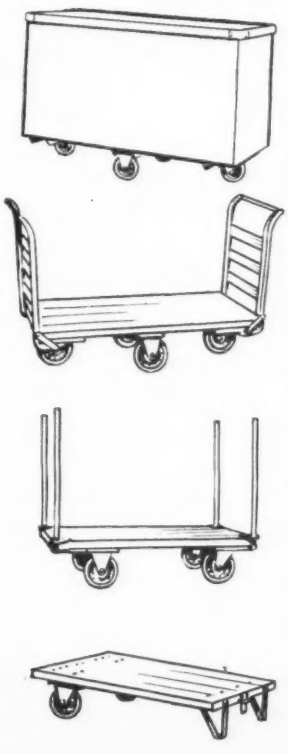

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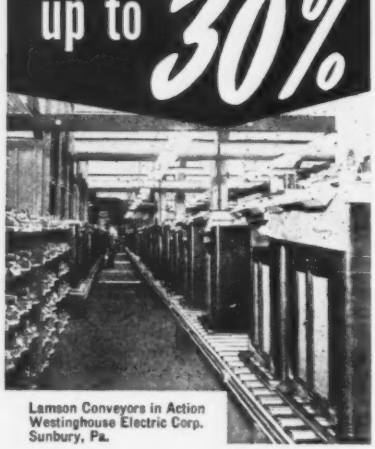

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*(Continued from page 71)*

in the smelting of the ore is presently being conducted by the Bureau of Mines at Albany, Ore., where a pilot plant is being constructed to determine the economics of the process.

The Raw Materials Survey held the first of a series of symposiums planned for the discussion of the problems of utilization of Oregon raw materials in Eugene on March 6. The date of the hearing was too late to permit the inclusion of any of the discussions in this issue, but they will be referred to in a later issue. The subject of the first symposium was utilization of Coos Bay coals.

This survey will also be a co-sponsor of a Northwest Industrial Minerals Conference which has been scheduled for May 8 at the Multnomah Hotel in Portland. A committee of the American Institute of Mining and Metallurgical Engineers is the primary sponsor of the conference, with the assistance of the Oregon State Department of Geology and Mineral Industries, the Portland Chamber of Commerce, and the Raw Materials Survey.

SEATTLE — Several promising new uses for Western timber species are being developed in the laboratory of the college of forestry at the University of Washington. Shingles made from white fir treated with urea instead of the rapidly disappearing red cedar have proven to be adequate for house siding and are now being tested for exterior roofing purposes. Ponderosa pine is being substituted for hardwood flooring by impregnating the surface with phenolic resin and subjecting it to high frequency heat.

Eight new industries were established in Seattle during December, representing an investment of $114,000. Nine companies replaced production facilities with new plants during the same month, and 20 manufacturers reported expansions of existing facilities. Capital investments for replacements and expansions were $1,293,500 and $8,032,000, respectively. During the last 10 months of 1947 a total of 133 new industries were established in Seattle, according to the count of the industrial department of the chamber of commerce.

An Industrial Relations Conference was held late in February in Seattle under the joint sponsorship of the Seattle Chamber of Commerce and the Chamber of Commerce of the United States. Discussions of recent contract trends and future contract negotiations by two Western speakers were of particular interest.

Fred C. Fischer, director of industrial relations for the Douglas Aircraft Co., pointed out that there had been a marked growth in requests for employee welfare benefits such as health and accident insurance, paid holidays, and paid vacations. The question of paid holidays, he stated, is one of the great unresolved problems in present contract negotiations. He warned that both labor and management must be prepared to meet the challenge of federal intervention in the event of failure of the


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labor-management act to promote industrial peace.

James P. Rogers, formerly executive secretary of the Western Woods Employers' Association, predicted that 1948 will be a year of moderate wage increases with economic gains to be the principal objective of unions. He agreed with Fischer that there would be further increases in requests for sick leave, paid holidays, and vacations.

He urged that management undertake an intensive study of the problem of guaranteed annual wages toward which it is apparent that labor is now working. Rogers forecasted material increases in union membership and union finances as a result of the erasing of management's objections to union autocracy by the provisions of the labor-management act.

**TACOMA—Two old and long established plants here are undergoing major modernization programs which will materially improve efficiency and increase production. The smelter of American Smelting and Refining Co. will have the arsenic plant modernized, ore handling and storage facilities enlarged and improved, and two new crushing plants constructed. Output of the Sperry flour mills (Sperry division of General Mills, Inc.) will be increased 20 per cent by a modernization program which began in February.**

**Although Tacoma has lost the title of "lumber capital of the world" to cities farther south, local activity in the field of forest products is so great that it may aptly be called "the forest products capital," according to Corydon Wagner, vice-president of the St. Paul & Tacoma Lumber Co. Production of plywood, furniture, doors, and other lumber products is sufficient to make it top city in the field.**

What was perhaps one of the simplest reductions of the problem of contract negotiations was put forth by A. A. Desser, director of the labor-management division of the American Arbitration Association. All labor requests can be divided into three general classifications, Desser said, and enumerated these as wages, job security, and employee welfare. Although no general settlement can be applicable to any individual issue, the first step toward any solution is an agreement on the exact issue by all parties to the dispute, and the second step is a bringing together of the attitudes of the opposing parties to a single desire to settle the dispute.

Desser urged that employers undertake a continual evaluation of the labor-management situation rather than relegating such studies to times of negotiation, and warned that in no instance has a judicial decision or a legislative act resulted in sound, long range labor relations.

As this is written (March 1) the Puget Sound area of western Washington has just been confronted with what is the most serious transportation crisis in its history. After nearly a year of disagreement between the Puget Sound Navigation Co. and the state Department of Transportation over the rates to be charged for ferry transportation across the Sound, the company suspended all intra-state service and surrendered its certificates of necessity.

Although the breakdown in ferry service between Seattle and the Olympic Peninsula affects principally the individual passengers commuting back and forth, it must ultimately affect development of the area along all lines if no adequate solution is reached. Puget Sound Navigation Co. last year requested permission to increase its rates about 30 per cent and put the charges into effect pending the granting of permission. The Washington Department of Transportation eventually granted an increase of about 10 per cent and ordered the company to rebate the difference.

The company was unsuccessful in a court action to have the state's ruling set aside, and the state was unsuccessful in a court action that would have required the company to maintain its ferries in operation at the rates permitted by the state. The company then carried out its threat to cease operations, and the problem was thrown into the lap of the state Toll Bridge Authority. Makeshift passenger transportation across the Sound has been put into effect, but no vehicular traffic is being carried. An ultimate solution to the problem appears to be distant to say the least.

**SPOKANE — Power generation at Grand Coulee dam increased another 14 per cent during February when the eighth 108,000-kw. generator went into production. The plant is now at its highest production capacity and is able to turn out more power than at any time during the war.**

**Leasing of the magnesium reduction plant to the Pend Oreille Mines & Metal Co. and the Chromium Mining & Smelting Corp. is expected to bring activity to that plant in the near future. The plant has been shut down since Electro-Metallurgical Co. halted production at the end of the war.**

**PORTLAND—Swan Island, wartime scene of steel tanker construction under the Kaiser emblem, is now the location of a highly diversified industrial production. Output of the one-time shipyard varies from paper flower pots to ship repair. A total of 29 industrial firms has established principal or branch plants, and a number of firms are using the area's facilities for warehousing, offices, and school rooms.**

**The month of January saw 13 new industries established, according to the count of the chamber of commerce. In addition nine established industries announced plans for expansion, and the total capital investment for both classifications is estimated at slightly more than $500,000.**

**Carborundum Co. of Niagara Falls, N. Y., has assigned contractors for the construction of its new plant at Vancouver, Wash., and preliminary foundation investigations were begun during February. Nicholson Co., Inc., New York, and the chemical division of Blaw-Knox Co., Pittsburgh, will each handle part of the plant design and construction. Raymond Concrete Pile Co. is doing the foundation exploration.**


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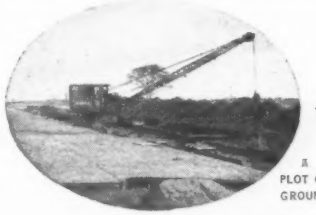
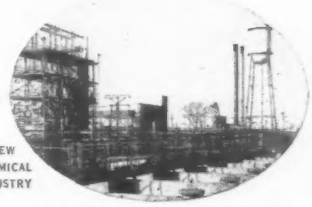


1943

A PLOT OF GROUND



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**1943**—We started to build a plant and a main office in Midland, Michigan.
**1948**—We have a large plant, now almost twice its original size, working full time to supply you with the silicone products you have come to depend upon. It's the first plant of its kind ever built. To pace our increasing productive capacity we now have branch offices in four major cities and two new ones about to be opened. In **1948** as in **1943**, we look forward, with your help, to a future busy with new silicone products and to a plant several times the size of our present one.

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## Spectrograph Lab Now on Coast

The only spectrographic laboratory in the West, built for steel production quality control on a production basis, is now in use at Bethlehem Pacific's South San Francisco plant.

Spectrographic equipment now makes it practical to determine all of the residual elements in steel, mainly due to the sensitiveness and the speed with which results may be obtained. All elements that react favorably to spectrographic methods are determined simultaneously on one photographic plate.

When done by conventional chemical methods each element must be run individually. Once the necessary preparations have been made and standards and calibrations established, many analyses can be completed in 30 minutes or less. In the manufacture of quality steels it is of primary importance to know the composition of the molten steel during the refining period, and for control purposes the greater the speed with which an analysis can be made, the greater the possibility of accurate control. Although chemical methods of analysis are feasible for all of the important elements encountered in steel making, a large number of them require considerable time and expense, and therefore cannot be considered for control purposes. It is in this field that spectrographic analysis excells due to its accuracy and speed.

Operation of the spectrograph is simple and fast. First, molton samples are taken from open hearth furnace and cast into small cylindrical shapes and sent to laboratory sample preparation room; second, after grinding ends of samples to dome shape two of them are inserted into electrode holders; third, these specimens of steel are set up as electrodes in a high voltage circuit and a spark is made to jump the measured gap between them; fourth, the light from this spark is directed into the spectrograph where it passes through an optically perfect triangular quartz prism which separates the light beam into its component wave lengths. The refracted rays are focused on a glass photographic plate which records the spectrum lines; and finally, a specially designed dark room receives the photographic plates where they are completely processed in a period of approximately five minutes.

## Costly Compensation

More than $100,000 in weekly compensation payments and medical treatment were furnished by the employer, the Pacific Telephone & Telegraph Company, to a paralyzed employee from the date of his injury on November 25, 1930, until his death in August, 1947. The California Industrial Accident Commission reports this as one of the most expensive compensation cases on record. The injury was sustained in a street car accident in the course of employment. PT&T was a self-insurer.

# Manufacturing Employment Increases in Utah

SALT LAKE CITY — Employment in Utah's manufacturing industries during the early part of this year shows a healthy increase over the corresponding periods for 1947 and 1946. Statistics compiled by the Utah Manufacturers Association show January employment at 26,080 compared to 22,851 for January of 1947 and 19,261 for January of 1946.

For a state whose industrial payrolls were standing still or shrinking slightly before the war, a 15 per cent increase is sufficient to hold optimism to a high level even against the buffetings of adverse national economic winds.

### New Plants to Be Built

Another prop to confidence in this area is the fact that a large number (for Utah) of important new manufacturing plants now being built or scheduled for early construction will get into operation during 1948. A recent bulletin of the manufacturers' association listed about 50 new construction or major expansion programs which should keep industrial employment on the upgrade during the year and possibly into 1949.

Revised figures of the state department of employment security shows that the state's industrial payroll (that covered by unemployment insurance) reached an all-time high of $287,470,000. The previous high was $255,000,000 for 1943. And the last three months of 1947 set a new high quarterly figure at $78,550,650.

These increases are doubly comforting to the area because they are taking place during a period when employment at remaining military establishments is steadily declining. Fort Douglas, a sizable city during the war, is apparently slated for abandonment and disposal. The state department of publicity and industrial development is currently moaning that plans are underway to shift about one-third the employees at the Clearfield Navy depot to the Pacific Coast as a prelude to removal of the entire set-up. And the state's congressional delegation is being called upon at frequent intervals to "save" other military establishments.

The screaming at each real or threatened curtailment is being tempered somewhat by the aforementioned trend in peacetime industries.

### Industrial Maw

From now until next November the people of this area are going to hear a lot about industry and politics. Utah's two-term governor—Herbert B. Maw—has announced his candidacy for a third term. And his initial statement indicates that the key refrain of his campaign is going to be "see what my administration has done to promote industrialization."

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# Volume of Output Input Control Speeds

By R. W. KERR
Vice-President, Plomb Tool Co., Los Angeles

"INPUT control" is what we have found most useful at Plomb Tool Company in attacking the basic problem of today's production, namely, to change the psychology of production men from "putting out whatever we can" to "producing what is needed."

This deep-seated psychological bent, which developed during the war and the shortage period immediately following, requires an obvious, simple and basic control that will not only bring home to production people the lesson of the day, but from which all other controls will necessarily stem.

By input control we mean, "put into the plant *only* what you want to get out." This may seem almost too obvious. It represents, however, a fundamental psychological revolution from the attitude of the past five years. Input control operates as follows:

The sales department places detailed orders with the manufacturing division, specifying items, quantities and required delivery dates. Based on these orders the works manager is given a *daily input budget,* which he must meet within specified limits. Weekly and monthly accumulated input must also be within specified limits. He is free to start any particular item or items at any time, so long as he schedules them to be completed at the time called for by the sales department.

Notice the *daily* feature of this control. It gives the works manager abundant scope for use of his judgment and prerogatives, but at the same time puts his other controls onto a daily basis too. This tightens up every function of the manufacturing division.

Excess inventories, under this method, can accumulate only through errors in sales estimates. Work in process inventory automatically remains in balance with output. If finished inventory accumulates, the sales department, whose responsibility it was in the first place, is stimulated to take steps to correct it. Or if inventory falls below required minimums, additional orders can be placed with the factory. The point is that inventory is now in control of one department, the department that also carries the primary responsibility.

From the principle of input control it follows that work flow, or production control, becomes simplified. With input equalling output, scheduling can avoid the problems that arise when work piles up in the first half of the manufacturing cycle while the last half is partly idle, or vice versa.

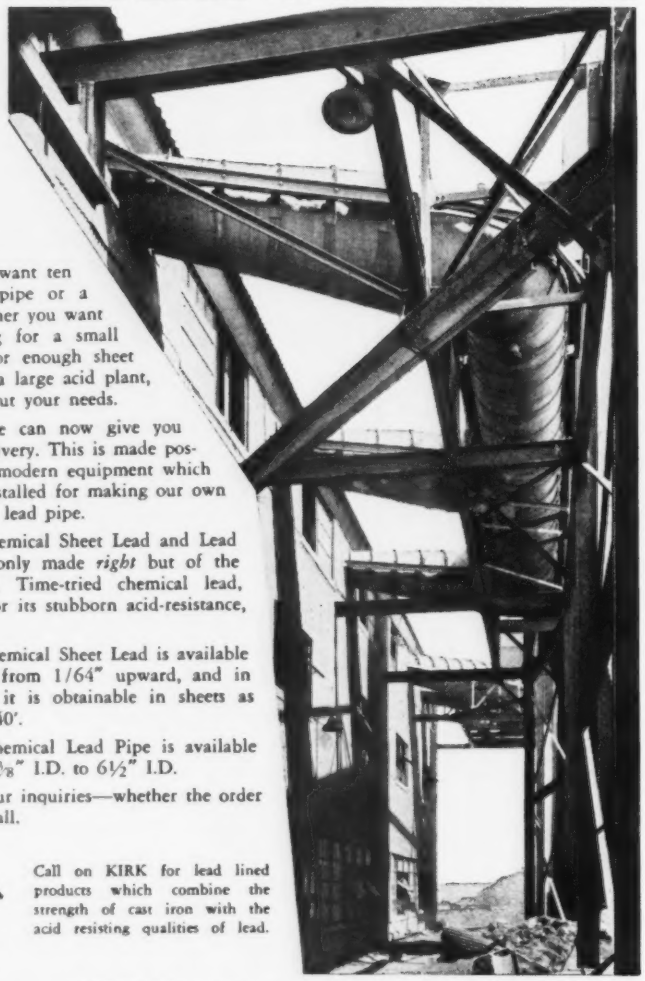
The spots in the plant where machinery is inadequate to the load upon it, or is not in proper balance with other machinery when over-all demand is considered, become obvious and management can therefore take action to correct the situation. Plant equipment is forced into conformity with demand, instead of production falling into the patterns predetermined by machine capacity.

Cost control is improved by elimination of the "emergency measures" which after five years of more than capacity operations, the factory personnel came to accept as normal. This "emergency" attitude became almost universal during the war, special problems cropping up at any hour of the day or night that seemed to require special action. Each such emergency, quite naturally, means added cost and extra complications in cost control.

Stabilization of input and work flow can very soon get workers and foremen back into the correct attitude that an

*(Continued on page 92)*

Call on KIRK for Chemical Lead



Whether you want ten feet of lead pipe or a hundred, whether you want only a lining for a small plating tank or enough sheet lead to build a large acid plant, see KIRK about your needs.

Remember, we can now give you immediate delivery. This is made possible by new, modern equipment which we recently installed for making our own sheet lead and lead pipe.

KIRKSON Chemical Sheet Lead and Lead Pipe are not only made *right* but of the right material. Time-tried chemical lead, long known for its stubborn acid-resistance, is used.

KIRKSON Chemical Sheet Lead is available in any gauge from 1/64" upward, and in some weights it is obtainable in sheets as large as 9' x 40'.

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SHEET LEAD LEAD PIPE

# Federal Fuels Program

*(Continued from page 54)*

Cost of synthesis gas is the major expense in obtaining a finished product in any liquefied fuel. This gas work has been done with extraordinary effectiveness at the U. S. Bureau of Mines Synthesis Gas Laboratories and Pilot Plant at Morgantown, W. Va. The synthesis gas is made from raw coal. (In passing, it is interesting to record that Pittsburgh class A bituminous is found highly volatile, as is class C from Rock Springs, Wyo.)

The work is aided substantially by the Synthetic Liquid Fuels Foreign Document Division, which recently was transferred from Washington to Pittsburgh. Its experts have done amazing work in exhuming extraordinary resources of information from captured German documents, and from other foreign language data gathered from various parts of the world. It should be remembered the British as well as the Germans have done considerable work on synthetic liquid fuels.

Technologists have been brought from various countries, particularly the scientists who have worked on the problems in Germany. The German scientists have the main source of information for basic coal hydrogenation knowledge and practical plant design. By arrangement with the U. S. Army a number of scientists and synthetic fuel technicians were brought from Germany and have worked with the U. S. Bureau of Mines people in the various plants and laboratories established in this country.

The plant at Peoria, Ill., is a part of the North Regional Research Laboratory maintained by the Department of Agriculture. It is called the Synthetic Liquid Fuels Semi-Works Plant. Under the guidance of the Bureau of Agricultural and Industrial Chemistry, the Department of Agriculture began, during the war, actively to study the feasibility of producing synthetic fuels in the form of alcohol, and other liquid fuels, from the agricultural residues that come within the purview of the farm people. The undertaking has been known as the Synthetic Liquid Fuels Project.

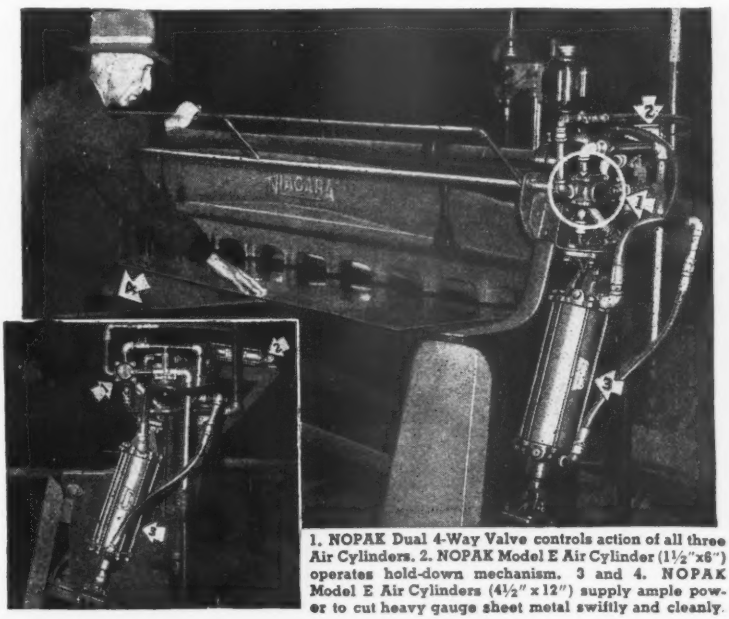
At Peoria, very detailed studies have been made of the various manufacturing steps, and of costs for production. The most interesting work has been done during the past year. It was demonstrated that pentosan fraction of corncobs can be satisfactorily hydrolized to pentose sugars with high yield, and that sugars can be efficiently fermented in pentosan hydrolysates to liquid fuels. These two processes are deemed to open a new avenue for liquid fuel production heretofore regarded as impossible.

Over 400,000 pounds of cobs were processed in 1947. The product approximated 75 gallons liquid fuel per ton. The corncobs are delivered at the laboratory at a cost of $3 per ton. It is estimated the potential of corncobs alone, throughout the United States, is enormous.

The Department of Agriculture has been working in cooperation with the U. S. Bureau of Mines, and is expected to finish its studies early this year. There seems to be much confidence that the corncob field will yield a cheap and very useful liquid fuel also that the explorations now in progress at Peoria are almost certain to develop synthetic liquid fuels from other agricultural residues.

## Liquid Gold

A tabulation of the oil industry in the five Western states shows that its physical assets represent an original cost of $3,167,000,000, most of it being in California, where the major producing and refining facilities are located; that it employs directly 132,000 persons, paying them nearly $400,000,000 a year in salaries and wages; and that federal, state, and local governments receive more than $237,000,000 annually in taxes from the industry.

1. NOPAK Dual 4-Way Valve controls action of all three Air Cylinders. 2. NOPAK Model E Air Cylinder (1½"x6") operates hold-down mechanism. 3 and 4. NOPAK Model E Air Cylinders (4½" x 12") supply ample power to cut heavy gauge sheet metal swiftly and cleanly.

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# Court Upholds Veteran Vacation Pay Rights

EMPLOYERS should carefully review their union contracts in regard to vacation pay and benefits, in light of the recent United States Circuit Court decision regarding the status of veterans and accrued vacation time.

The decision declared that a man, on a permanent job, who is inducted into the armed forces, is entitled to full seniority privileges and vacation benefits, as though he had never left his job, if honorably discharged.

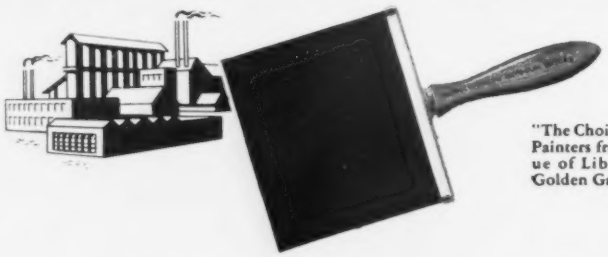
For example, a man is inducted into the armed forces in 1942, after having worked as a truck driver on a permanent basis for six months. He returns from the service in 1946, and if his union contract calls for a two-week vacation for every five years of work, he is entitled to the vacation after completing six months of work in 1946.

Many employers might be liable for this vacation pay, as the decision also interpreted a vacation "not only as a period of relaxation, but also a bonus." In this respect, and in regard to the interpretation of "seniority" in the original Veterans Right Acts, this Court went beyond any previous interpretations. The original Act declared that veterans were entitled to seniority privileges and other benefits, but did not interpret these phrases.

The Circuit Court of Appeals stated clearly that veterans retain all seniority while in the armed forces, and "benefits" includes accrued vacation time. To an em-

*(Continued on page 80)*


**MORCK SPEED-LINE BRUSHES**



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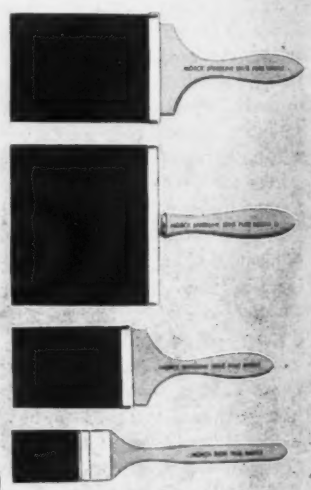

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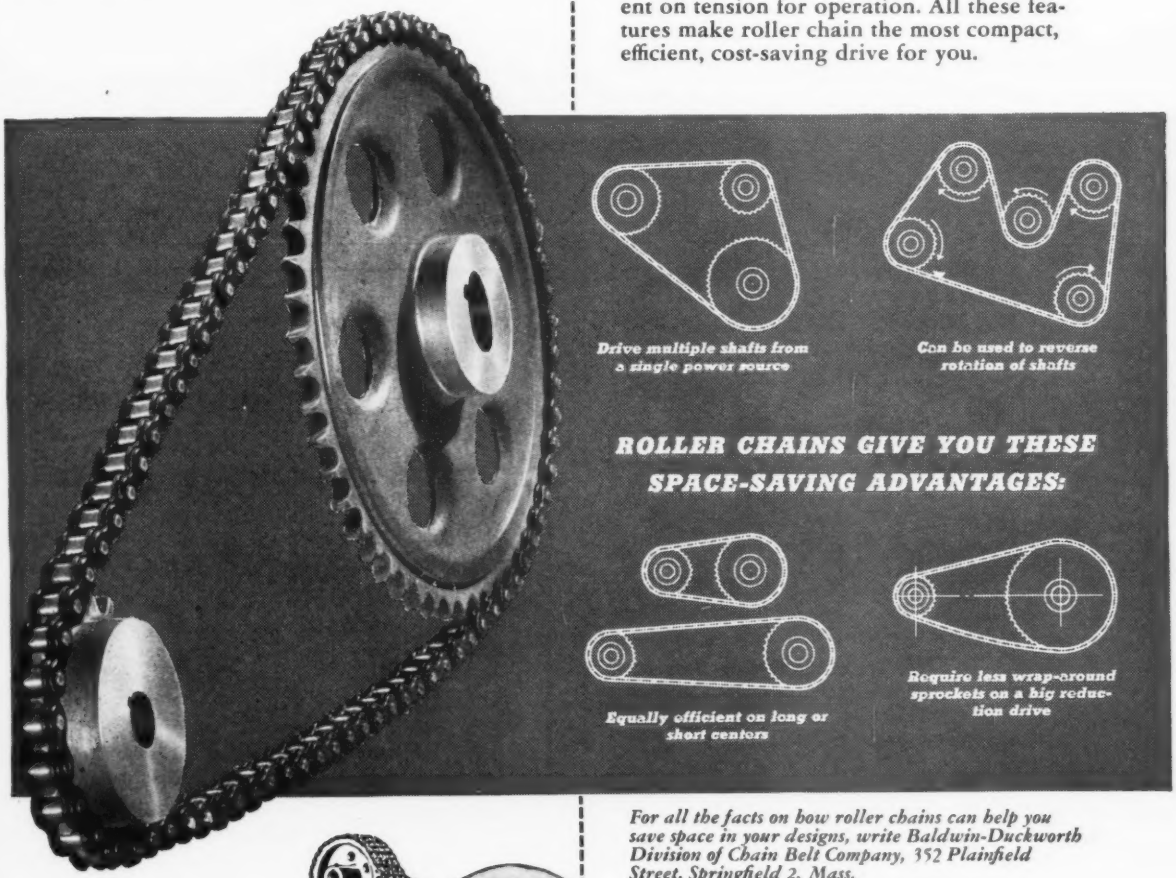
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**ROLLER CHAINS**

BALDWIN-DUCKWORTH DIVISION OF CHAIN BELT COMPANY

*(Continued from page 78)*

ployer this means that if his union contract calls for a specified number of days of vacation for each year, then a veteran could apply for his vacation time, within 90 days after returning to his job from the service.

As explained by P. M. Kenefich of the Veterans' Reemployment Rights Division, San Francisco, it may in some instances be desirable for employers to review the status of all reinstated veterans to determine if the basic requirements of the law have been fulfilled.

A veteran has reemployment rights:

a. If the position was in the employ of a private employer, the U. S. Government, its Territories or possessions, or the District of Columbia;

b. If the position was other than a temporary position;

c. If he left such a position in order to enter upon active duty in the Army, Navy, Marine Corps or Coast Guard, including the women's components thereof; or the Merchant Marine or related maritime services; or if within 30 days after having satisfactorily completed service in the armed forces, he entered the Merchant Marine, or if having served in the Merchant Marine he terminated such service in order to enter the armed services and in fact did within 30 days thereafter enter the armed forces and subsequently did receive a partial certificate of substantially continuous service in the Merchant Marine or related service;

d. If he satisfactorily completed his period of service in the armed forces and received a certificate to that effect, or if he satisfactorily completed a period of substantially continuous service in the Merchant Marine or related services and received a certificate to that effect.

e. If he is still qualified to perform the duties of the position;

f. If he makes application for reemployment within 90 days after he is discharged from the armed forces or released from the Merchant Marine or related services, or within 90 days after hospitalization continuing after release or discharge, as the case may be, for a period of not more than one year;

g. If such position was in the employ of a private employer, the employer's circumstances have not so changed as to make it impossible or unreasonable to reinstate the veteran to such position or to a position of like seniority, status, and pay.

If the conditions described above apply, any of the following have legal rights to jobs:

a. All persons inducted for military training and service under the provisions of the Selective Training and Service Act of 1940, as amended.

b. Members of any reserve component of the land or naval forces who were on active duty on August 27, 1940, or who were called to active duty after that date.

c. All persons who, subsequent to May 1, 1940, have entered upon active military or naval service in the land or naval forces of the United States, including the women's components thereof.

d. Reserve officers of the United States Public Health Service called to active duty after November 11, 1943.

e. Persons who entered the Merchant Marine between May 1, 1940 and July 25, 1947.

Any veteran entitled to reemployment rights and benefits cannot be discharged within one year without cause from the position to which he is restored. Upon restoration the veteran is entitled to any general increase in seniority, status and pay which accrued to his position during his military service, and is entitled to participate in insurance and other benefits applicable to employees on leave of absence at the time of his entry into service. These statutes further provide that he shall suffer no loss in seniority, shall receive


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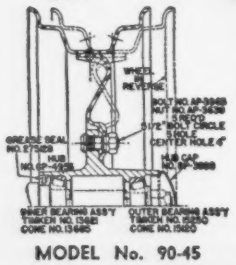

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seniority credit for the period of his military service and shall not be discharged from his position without cause for one year.

The ordinary procedure for handling veterans' reemployment rights is for amicable settlement on the local community level by intercession of the local veterans' reemployment rights committeeman with the employer involved. Veterans or employers with questions concerning reemployment rights matters should contact either the local State Employment Service office or the local Reemployment Rights Committeeman (whose name and address can usually be secured through the local employment office). Most cases are settled in this manner and at this level.

More complicated cases are referred to a field representative of the Veterans' Reemployment Rights Division by the local committeeman. Here again, an attempt is made to settle the case out of court by means of negotiations and conferences.

If amicable settlement is impossible the case is then referred to the United States District Attorney, who, if reasonably satisfied that the veteran so applying has been denied such benefits, appears and acts as attorney before a United States District Court to legally enforce the veterans' rights.

No fees or court costs are assessed the veteran in accordance with the law. A veteran may, at any point in the above procedure, take his case to the United States District Attorney, or to a private attorney at his own expense.

Field Representatives of the Veterans' Reemployment Rights Division strive not only to settle these cases amicably and out of court, but also make a sincere attempt to handle all cases in a manner which will maintain and improve good employer-employee relations.

### *Arizona Court Says Labor Not Harmed*

Arizona's supreme court, in affirming recently the "right to work" amendment to the Arizona constitution, held that the law does not contravene any provisions of the federal organic law, that the rights of free speech and assembly remain inviolate, and that labor's basic rights to organize into a union, bargain collectively, to strike and peaceably picket are not abridged.

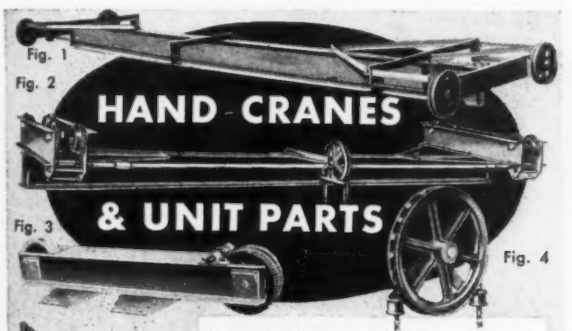
"There is both the force of logic and the recognition and will of the people of Arizona that this is necessary and proper legislation," the decision of Justice Levi S. Udall stated. "Together with this, there is a similar recognition on the part of the people of 15 other states (referring to similar laws in these states) and the federal government that this is a desirable and proper use of the police power directed toward an appropriate legislative purpose. There can be no valid argument made that such legislation is discriminatory, or that its effect upon existing contracts should be limited."

Arizona's constitutional amendment adopted at the general election of 1946 reads as follows:

> "No person shall be denied the opportunity to obtain or retain employment because of non-membership in a labor organization, nor shall the state, or any subdivision thereof, or any corporation, individual or association of any kind enter into any agreement, written or oral, which excludes any person from employment or continuation of employment because of non-membership in a labor organization."

The decision says: "If it is proper to legislate to the effect that no employee shall be forced, as a condition of employment, to be a nonunion man, it would seem that legislation providing that no employee shall be forced, as a condition of employment, to be a union man, would be but a logical counterpart."

It is expected that an appeal will be taken by the unions to the U. S. Supreme Court. One of the union attorneys was J. H. Morgan, a former justice of the Arizona Supreme Court. He was defeated for re-election to the court a few months ago. The case was one brought against the American Sash & Door Company by the American Federation of Labor and other unions.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# THE WEST ON ITS WAY

## CALIFORNIA

ADDITION PLANNED BY CALPAK—A one-story addition to Plant No. 3 in San Jose is planned by the California Packing Corp., San Francisco. The new building, concrete and steel warehouse and cooling room, will cost $215,777.

BEST FOODS TO BUILD—At a cost of $1,250,000 Best Foods, Inc., San Francisco, will construct two factory buildings. One will be located at Mariposa and Bryant streets, San Francisco, and the second at 18th and Florida streets.

TWENTY-NINE PALMS AS NEW BUILDING SITE—Dale Chemical Industries, Inc., Los Angeles, have awarded a contract for a group of steel buildings and concrete silos to be built near Twenty-Nine Palms. The cost of the construction will be $150,000.

PILLSBURY MILLS BUILDING—A one-story office building will be constructed by Pillsbury Mills, Los Angeles, at northeast corner of Ferguson Drive and Goodrich Blvd. The contract has been awarded for $450.000.

BROWN-BEVIS OPERATES POMONA PLANT—The Salsbury Motors, Inc., plant in Pomona has been sold to the Brown-Bevis Company, Los Angeles. The plant will be tooled, in part, for manufacture of the Wayne motor sweeper, a municipal and industrial street sweeper.

L. E. NILES COMPANY IN OPERATION—The new $100,000 plant of L. E. Niles Co., San Francisco, is now in operation, manufacturing adjustable stock bins for distribution to the automobile trade, as well as store fixtures and domestic kitchens.

PAINT FACTORY EXPANDS — Pacific Paint and Varnish Co., Berkeley, has started construction on an addition to cost approximately $400,000.

MONADNOCK MILLS WILL BUILD—Monadnock Mills, San Leandro, are preparing plans for a new 100x180-ft. plant for the manufacture of fasteners.

LABORATORY BUYS PLANT—Cutter Laboratories, Inc., has purchased from the War Assets Administration a surplus penicillin plant adjacent to their property in Berkeley. The cost was $175,000.

PARAFFINE COMPANIES EXPANDING—In addition to expansion in the East, The Paraffine Companies, Inc., San Francisco, will shortly complete a factory in Redwood City. They will add asbestos-cement building materials to their lines to be manufactured in the new plant.

REVERE COPPER ACQUIRES PLANT — The Revere Copper and Brass Co. have concluded negotiations for a plant in Riverside for the manufacture of stainless steel cooking utensils. They are also erecting a building in the Los Angeles central manufacturing district for the production of seamless copper and alloy tubing and brass rods.

NEW FIRM FORMED IN L. A.—Precision Equipment Co., Inc., has entered the manufacturing industry in Los Angeles to produce stainless steel, nickel and cobalt base alloy valve fittings and machined products. The company will serve the oil, chemical and aircraft industries principally.

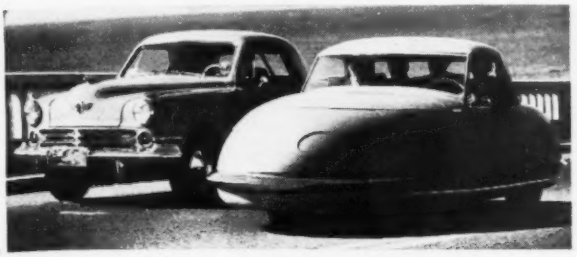
CONCRETE PIPE FIRM WILL BUILD—United Concrete Pipe Corp. has started construction of a $1,000,000 manufacturing plant on a 60-acre site in Stockton. They manufacture high pressure reinforced concrete pipe for water supply.

LOS ANGELES, CENTRAL—H. D. Cowan & Company, 1650 Long Beach Ave., making store and bank fixtures and residential cabinet work, has added 6,000 sq. ft., bringing total space to 25,000 sq. ft.; Dependable Foundry & Manufacturing Company, 1721 Newton St., has occupied new 3,000-sq. ft. building, making brass, aluminum and bronze castings; H. A. Voight Machining, 922 Hemlock St., now has 4,600 ft. for manufacture of screw machine products; Western Engineering & Manufacturing Company, 1726 E. Washington Blvd., acquired 4,000-sq. ft. addition; manufacturing ventilators, fans, etc.

CHEMICAL PLANT TO BUILD—Trail Chemical Corp., 2512 Gidley St., Los Angeles, plans a 6,000-sq. ft. building on a 2½-acre site for manufacture of lacquers, synthetic enamels and paints. W. J. Peters is president.

SOUTHERN CALIFORNIA EXPANSION—**Alhambra:** C. F. Braun & Company, 1000 S. Fremont Ave., builders of refineries, cooling towers, etc., is adding a four-story building to present plant; **Azusa:** Wynn Oil Company, 1222 Duarte Road, San Gabriel, is building a plant on a seven-acre site near Bayleff St. to increase output of friction-proofing oil; **Downey:** North American Aviation, Inc., has leased 600,000 sq. ft. at former Consolidated-Vultee plant for storage, aircraft modification and light manufacture; **Hawthorne:** Mission Appliance Corp., 12611 Crenshaw Blvd., is erecting an 18,000 sq. ft. addition for production of automatic storage water heaters; **Hermosa Beach:** California Hand Prints, Inc., is building an 8,000-sq. ft. addition for hand-printing of draperies, table linens, dress fabrics, etc.; **Inglewood:** Stone Manufacturing Co., 1020 Hillcrest Blvd., is erecting a 3,500-sq. ft. addition for manufacture of dies and tools.

THREE-WHEEL CAR TO GO INTO PRODUCTION—The three-wheel, standard-sized Davis car will soon go into production at the Davis Van Nuys plant. Designed by Gary Davis, who is also the manufacturer, the automobile will be manufactured in a former aircraft plant; parts are being sub-contracted to several hundred California plants. Out-of-state items are the engine and the curved, shatter-proof glass windshield,



both of which are made in Ohio. The car is 16 ft. overall, has a four-cylinder, 60-hp. engine and will produce speeds up to 100 miles an hour at 35 to 50 miles per gallon. It seats four adults in its single seat. It is expected to sell at approximately $1,000 F.O.B. Los Angeles.

WEAVES GLASS CLOTH—Coast Manufacturing and Supply Co. of Livermore, manufacturers of safety fuse, have woven the first glass cloth on the Pacific Coast. The company has allotted approximately 20,000 sq. ft. of floor space to new equipment consisting of looms and other textile machinery used in weaving process and for ovens and processing machines required for the further treatment of glass cloth to produce newly developed materials, such as curtain fabrics, plastic coated fabrics and specially treated glass cloth for industrial uses.

GLUE MANUFACTURING OPENS—The Pacific Glue Manufacturing Company, a California Corporation, have opened their home office and manufacturing plant at 921-933 East Church Street, Stockton. They will manufacture a complete line of adhesives used by canners, bottlers, and food packaging industries.

BUILDING PROGRAM FOR GLOBE MILLS—Globe Mills, 907 E. Third St., Los Angeles, with parent company, Pillsbury Mills, plans continued building program on 17-acre site in 5700 block on Ferguson Rd.; will have plant covering 11 or 12 acres, making flour, biscuit mix and other prepared flours, macaroni products, poultry and livestock feeds, etc.

PAINT FIRM ADDS BUILDING—Hughes Paint Company, 5924 S. Western Ave., Los Angeles, is erecting a 10,000-sq. ft. building at 2551 E. 25th St., for use in connection with present plant for manufacture of paints, varnishes and oils.

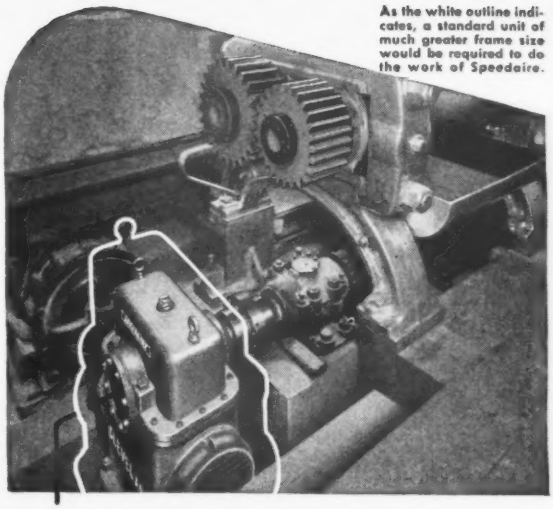
NEW ADDITION—Progress Manufacturing Company, 2623 Medford St., Los Angeles, has a new 16,000-sq. ft. addition; manufacturing springs, furniture and beach umbrella frames.

SIGNAL MANUFACTURING MOVES—Signal Manufacturing Company, 4041 Whiteside Ave., Los Angeles, has moved to new quarters where 10,000 sq. ft. more space utilized for manufacturing furniture hardware.

BED SPRING FIRM ADDS BUILDING—De Lamar Bed Spring Co., 1646 Nadeau St., Los Angeles, is adding 6,000 sq. ft. for expanded production of box spring units.

ACQUIRES BUILDING—Holister Coil Spring Manufacturing Co., 7100 S. Avalon Blvd., Los Angeles, has acquired a 10,000-sq. ft. building at 955 E. Slauson Ave. and plans an additional 10,000 sq. ft., for greater coil spring production.

ELECTRICAL MOTORS EXPAND—U. S. Electrical Motors, Inc., 200 E. Slauson Ave., Los Angeles, added 15,000 sq. ft. to production facilities.

As the white outline indicates, a standard unit of much greater frame size would be required to do the work of Speedaire.

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**fits into cramped quarters**

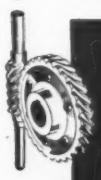
WITH a very restricted space to accommodate the speed reducer, a rubber company selected Speedaire to drive this new mill. A standard worm gear unit of equal capacity would have occupied over 60% more space.

In addition, the more powerful, compact Speedaire unit reduced the weight 11.7% and saved $117 on cost.

Speedaire is Cleveland's new fan-cooled worm-gear speed reducer. Because it is fan-cooled, Speedaire will do more work—will deliver up to *double the horsepower* of standard worm units of equal frame size, at usual motor speeds. It can be installed economically on many applications where other types have been used heretofore—giving you the advantages of a compact right-angle drive. Speedaire gives the same long, trouble-free service characteristic of all Clevelands.

For full description, send for Catalog 300. The Cleveland Worm & Gear Co., 3269 East 80th Street, Cleveland 4, Ohio.

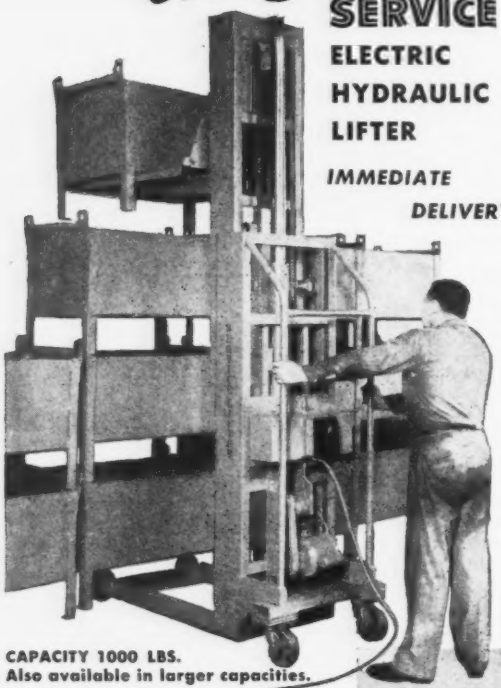
*Affiliate: The Farval Corporation, Centralized Systems of Lubrication. In Canada: Peacock Brothers Limited.*



**CLEVELAND**
**Worm Gear**
*Speed Reducers*

# new improved SERVICE ELECTRIC HYDRAULIC LIFTER

*IMMEDIATE DELIVERY*



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With the Service Electric Hydraulic Lifter any light socket in your plant is a power source for lifting up to 1000 lbs. . . . as high as 8' 8". . . by simply pressing a button. This is the practical equipment to *lower* handling costs as you *lift* heavy loads more efficiently . . . to make the handling of *dangerous* loads easier and *safer* for your men.

With twin roller lifting chains, either of which will safely hold the load . . . push button control . . . safety valve to prevent overloading . . . all the other features listed here . . . this new better Service Electric Hydraulic Lifter deserves a spot in your plant.

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## THE WEST ON ITS WAY

NEW CLOTHING MANUFACTURERS—Among the new clothing manufacturers in the Los Angeles area are Stork Line Manufacturing Co., making a line of maternity dresses; California Knitwear Co., manufacturing children's polo shirts, and Wilmo of California, who has started manufacture of juniors' and misses' coats.

VENETIAN BLIND MANUFACTURER—Arctic Venetian Blind Co., 5039 West Jefferson Blvd., Los Angeles, have begun manufacture of Venetian blinds in 3,700 sq. ft. of space. Frank Benjamin is president.

NEW CARBURETOR COMPANY—Continental Carburetor Co., 3130 Gage Avenue, Bell, are making butane carburetors. Herbert V. Hills is president.

U. S. STEEL SUPPLY BUYS WAREHOUSE—The United States Steel Supply Co., which maintains headquarters in Chicago, have purchased the warehouse and facilities at 1940 Harrison Street, San Francisco, from Columbia Steel Company. Both companies are subsidiaries of United States Steel Corporation.

PAINT COMPANY BUILDING—W. F. Fuller & Co. are constructing an 80,000 sq. ft. warehouse for paint, glass and wall paper at Front, Island and Union streets, San Diego. They will also fabricate sash and doors in the new plant. The cost of the building is $600,000.

NEW INDUSTRIES IN OAKLAND—Six new industries representing an estimated capital investment and expenditure of $261,000 include the Bowman Products Co., 3100 E. 10th Street; Frosted Food O'Mat Inc. of California, 2166 Broadway; Modern Store Fixture Manufacturing Co., 600 Laurel Avenue, Hayward; Redi-Rite Business Forms, Inc.; Rexford Pre-Pakt Co., 501 Ninth Avenue, and William J. Stange Co., 1045 East 11th Street.

EXPANSIONS IN OAKLAND—Expansions in five major plants will cost an estimated $840,000; estimated new employees number 42. Companies taking part in this program are Continental Can Co., 2601 San Leandro Street; Gall Furniture Manufacturing Co., 4001 San Leandro Street; Pacific Paint & Varnish Co., 4th and Cedar streets, Berkeley; Seven Up Bottling Co., 1410 - 31st Avenue; Western Waxed Paper Co., Division of Crown-Zellerbach Corp., 139th Avenue and Shoreline Blvd., San Leandro.

CORRUGATED BOX PLANT—Longview Fibre Co. of Longview, Washington, plans to construct a plant on a seven-acre site in the central manufacturing district, Los Angeles, for the manufacture of corrugated boxes. The new building will contain 130,000 sq. ft. A. F. Knaggs is in charge of construction and will be plant manager. A. D. West is in charge of sales.

REFRIGERATOR CAR FLEET—Pacific Fruit Express Company, owned by the Southern Pacific and Union Pacific railroads, will add 3,000 new refrigerator cars to their record-breaking fleet of approximately 40,000 cars. The new cars will be built at the Pacific Fruit Express Company shops in Los Angeles, Colton, and Roseville. Another 2,500 cars are to be rebuilt this year.

BUYS SPONGE RUBBER COMPANY—Roy N. Phelan, division manager of McGraw-Hill Publishing Co., Inc., Los Angeles, has resigned to enter the manufacturing business. He has purchased the Atlas Sponge Rubber Company, 866 East 61st Street, Los Angeles, from George R. Steinbach. The company are processors and fabricators of a diversified line of molded and sponge rubber products for the consumer and industry.

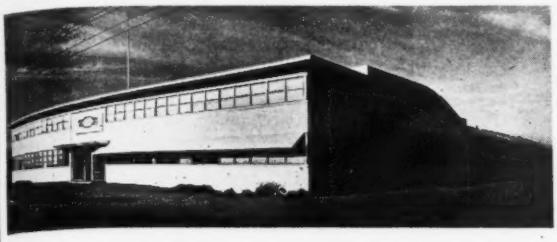
P.G.&E. EXPANSION UNDERWAY—Pacific Gas and Electric Company's $350,000,000 expansion program will add approximately 1,000,000 horsepower to the company's generating capacity by the end of 1951. Major construction in the San Francisco area which is underway includes a $23,700,000 project which will increase the capacity of the Hunters Point steam-electric generating plant, a $6,400,000 project to be built at Mission and Eighth streets, and a $3,000,000 project which will bring a new 24-inch gas transmission main into the city's Potrero gas plant.

TRAFFIC MARKING EQUIPMENT—Universal Manufacturing and Sales Co., 8716 Santa Fe Avenue, South Gate, have begun production of traffic marking equipment. Henry and Francis Moon are the owners.

COPPER PLAQUES—California Centennial Plaques, 521 South Myrtle Avenue, Monrovia, are manufacturing copper plaques commemorative of the discovery of gold in California.

BOTTLING PLANT CONSTRUCTED—Nehi Beverage Co., 711 East 59th Street, Los Angeles, is building a bottling plant at 700 Western Avenue, Glendale, to contain 25,000 sq. ft. of floor space.

KAAR ENGINEERING COMPLETES EXPANSION — The recent move of the Kaar Engineering Company into a 35,000 sq. ft. building completes an expansion program that will permit a doubling of the present production of radiotelephones and marine direction finders.



The plant was purchased from the Briarwood Corporation, manufacturers of Bryson and Brer Briar smoking pipes; it has facilities for production lines, development laboratories and shipping, storage, and general administrative departments. It occupies a two-and-a-half-acre site on the outskirts of Palo Alto.

PRINTERS' INK FIRM BUYS BUILDING—Sinclair & Valentine Co., 810 East 61st Street, Los Angeles, have acquired a 16,000 sq. ft. building, giving them three times the former space for manufacture of printers' inks. New equipment will also be installed.

TOOLS FIRM WILL BUILD—Roberts Company, 1230 South Boyle Avenue, Los Angeles, will construct a building of over 13,000 sq. ft. at 1536 North Indiana Street for increased manufacture of floor covering laying tools and equipment.

DOOR KNOB AND LOCK COMPANY IS BUILDING — A new building across the street from their plant at 4865 Exposition Blvd., Los Angeles, will contain 12,000 sq. ft. for increased production by the Hollymade Hardware Manufacturing Co. of door knobs, latch sets, cylinder locks, drawer pulls and knobs.

HEATING COMPANY CONSTRUCTS PLANT—Andrews-Schroeder Heating Company, Inc., 120 West Chevy Chase Drive, Glendale, is constructing a plant at 223 West Orange Grove Avenue, Burbank, to consist of one building of 5,600 sq. ft. and a two-story office building of about 1,800 sq. ft. The company manufactures gas furnaces, registers and furnace supplies.

PRINTING COMPANY TO BUILD—San Fernando Printing Company, 1307 Bond Street, will construct a plant at 3820 Clarington Avenue, Los Angeles, to contain 4,000 sq. ft.

MOVES INTO NEW BUILDING—Hugh Robinson & Sons, 1130 East 108th Street, Los Angeles, have moved into their new building of about 4,500 sq. ft. for increased manufacture of shell and tube condensers and coolers, pipe coils, and evaporative condensers.

MACHINE SHOP ADDITION—Trojan Steel, Inc., 4735 East 52nd Drive, Los Angeles, is adding 3,500 sq. ft. to its machine shop. The company fabricates reinforcing steel.

ADDS PRODUCTION SPACE — Sharpe Manufacturing Co., 1224 Wall Street, Los Angeles, is adding 3,300 sq. ft. to production facilities for portable compressors and paint spraying equipment.

BUILDING COMPLETED — International Research Co., 2832 East Olympic Blvd., Los Angeles, has moved into its newly constructed building of 4,000 sq. ft. The company makes variable speed drivers, multiple spindle drill heads, and other equipment.

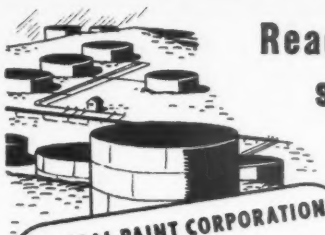
ABC PLANS TELEVISION STATION—If current location problems can be solved, ABC will spend some $250,000 for San Francisco's first television station.

PRODUCTION OF BATTERY SEPARATORS—Arrow Mill Co., 2440 Arrowmill Avenue, Los Angeles, have acquired the plant of the former Standard Battery Separator Co., consisting of seven acres of land and about 50,000 sq. ft. of buildings. The company plans an expanded production of battery separators. H. B. Jameson is president.

FURNACE COMPANY EXPANDS—Lennox Furnace Co., 974 South Fair Oaks Avenue, Pasadena, have added 18,000 sq. ft., bringing the total space to 33,000 sq. ft. for the production of residential furnaces and air conditioners.

TOOL COMPANY HAS ADDITION—Quijada Tool Company, 5474 Alhambra Ave., Los Angeles, has added 3,500 sq. ft. for greater production of portable pipe-threading machines, tools, dies, etc.


# If minutes mean $$—



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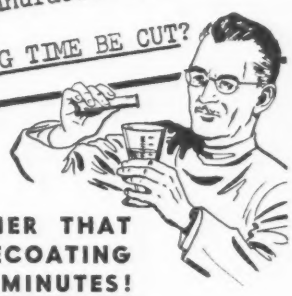
PROBLEM #KC-17

Midwest company makes storage tanks on continuous line process. Sections are shaped, flanged, drilled— then cleaned and painted.

BUT— painting and drying takes too long, holds up manufacturing flow.

HOW CAN FINISHING TIME BE CUT?



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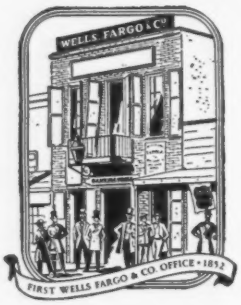


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## THE WEST ON ITS WAY

TWO-STORY BUILDING COMPLETED—Swift & Company, 3750 Jewel Ave., Los Angeles, has completed a two-story office building of 16,000 sq. ft.; at this plant the company makes salad oil, cottonseed, soy bean and peanut oil, shortening, etc.

MANUFACTURE OF PORTABLE STOVES—Holther Corporation, 5321 Firestone Blvd., South Gate, are manufacturing hot plates, portable camp stoves, and other products which utilize butane or propane gas. James H. Holther is president.

FIRM CHANGES OWNERSHIP — Forster Shipbuilding Company, Inc., are the successors to Garbutt & Walsh in their San Pedro location. The president of the new company is Thomas F. Forster.

NEW AWNING COMPANY PLANTS—The California Metal Awning Co. have established plants at Riverside and Pasadena to manufacture four-way ventilated metal awnings.

## COLORADO

SAW TIMBER CONTRACTED—Provisional award of two contracts for sale of more than 16,000,000 board feet of timber went to Haubrick Brothers of Meeker and Arthur Maijala of Yampa. The timber is to be harvested within the next four years from the White River National forest. The Haubrick Brothers will make their cut on 344 acres of the Coffee Pot logging unit, 24 miles northwest of Dotsero. Maijala will establish a mill adjacent to the 508-acre Lower Bear River unit, 20 miles west of Yampa, where he will cut timber for Wisconsin and Minnesota mills.

PRINTING PLANT BEING CONSTRUCTED—A $500,000 printing and lithographic plant for the A. B. Hirschfeld Press is being built on property off Speer Boulevard near Broadway, Denver. The single-story plant will be of steel and concrete and will have both letterpress and offset facilities. It will be air-conditioned and humidified, with 50,000 sq. ft. of floor space. A 15,000 sq. ft. parking-lot area can be used for further expansion.

WAREHOUSE AND FREIGHT TERMINAL PLANNED — West Coast Fast Freight, Inc., plans to build a two-story $150,000 warehouse and freight terminal. Its location will be West 12th Avenue and Shoshone Street, Denver.

WAREHOUSE TO BE BUILT IN PUEBLO—Crane-O'Fallon of Denver will build a one-story, block-long warehouse in Pueblo to take care of their expanding business in southern Colorado and northern New Mexico. The property purchased for the building cost $60,000.

ACQUIRE COAL MINE—Imperial Coal Co. of Denver have purchased the mine of National Fuel Co., located 20 miles north of Denver, thus acquiring one of the oldest coal properties in Colorado. James Brennan, president and manager of Imperial, will manage both operations.

## IDAHO

PLANS FOR PLASTER PLANT—Northwest Gypsum Company plan a $300,000 plaster plant to be constructed at their Snake River site 10 miles north of Huntington in Washington County. Their daily capacity is 150 tons.

ELEMENTAL PHOSPHORUS TO BE PRODUCED—Westvaco Chlorine Products Corp., New York, have arranged for the production of elemental phosphorus at an electric furnace plant near Pocatello. A long-term power contract has been negotiated with the Idaho Power Company. In collaboration with the engineers of the J. R. Simplot Company, Westvaco's engineers have defined a large tonnage of phosphate rock for furnace feed in the leases which the Simplot Company holds in the Fort Hall Indian Reservation.

## NEVADA

INSULATING MATERIALS PLANT—The Eagle-Picher Co. has completed a new plant at Clark, 20 miles east of Reno, for production of insulating materials, filters for use in the beverage, paint, paper and plastics industries, and other products.

PLANING MILL APPROVED—The Washoe County planning commission has approved the construction of a planing mill north of Reno off the Purdy highway. P. R. Evans will build the mill to dress lumber from California timber areas.

## OREGON

LUMBER FIRM SOLD — The former Pelican Bay Lumber Co. of Klamath Falls has been sold to Carr, Adams and Collier of Dubuque, Iowa. The price was approximately $250,000. A new company has been formed to handle the property; it will be known as Car-Ad-Co Company, and will be managed by John F. Moehl.

ATOMIC PLANT ORDERS ELECTRIC MOTORS — The Atomic Energy Commission, Portland, has ordered from the Westinghouse Electric Corp. $467,000 worth of electric motors to be used at the Hanford, Wash., plant. Ranging in size from 60 to 1,000 horsepower, most of the motors will be built at the new Westinghouse plant in Sunnyvale, Calif.

SHIFT IN MILL OPERATION—W. H. Daugherty, operator of the Lorane Valley Lumber Company, Inc., Cottage Grove, has taken over the direct operation of the ex-J. H. Chambers mill. Formerly the mill had been leased to the Northcutt Lumber Company, Inc., with the Northcutt firm operating it on a custom basis.

SAWMILL IN OPERATION—Pope & Talbot's sawmill at Oakridge will be completed shortly and put into operation. It cost an estimated $1,000,000 and will cut 200,000 board feet of lumber daily. Operations will be on a sustained yield basis with eventual erection of a plywood mill contemplated. The mill occupies 120 acres.

NEW DREDGING COMPANY — The Baker Dredging Company, Baker, formed by G. P. Lilley, M. A. Grant and Harold Banta, has taken over operations previously owned by the Sumpter Valley Dredging Company. The work will be local. O. O. Johnson is dredgemaster and R. D. Shelley is in charge of the office.

FUND FOR TOKETEE FALLS PLANT—California-Oregon Power Co. is planning to spend approximately $2,000,000 for the new Toketee Falls plant on the North Umpqua River.

MILLING COMPANY AT FREEWATER—Since the destruction of the mill at Pendleton, Preston-Shaffer Milling Company has rebuilt the major portion of that plant at Freewater where Western Milling Company products are being manufactured. The Western Milling Company is a division of Perston-Shaffer Milling Company with its head offices at Walla Walla, Wash.

## UTAH

PUMICE FIRM INCORPORATES—Formerly a partnership, the Utah Pumice Company has incorporated in Utah as Utah Pumice & Perlite Company. The firm operates an open cut mine at Pumice in Millard County and is headed by Byron A. Ray, Salt Lake City.

ELECTRIC POWER CO-OP FILES ARTICLES—The Utah Power and Development Co., a new nonprofit cooperative, has filed articles of incorporation at Cedar City. The corporation was organized to promote development of additional electric power and establishment of new industry in Iron and Washington counties. The president is LeRoy H. Cox of St. George, former Fifth Judicial District judge. Engineering studies have been authorized preliminary to construction of a large generating plant near the coal deposits in Coal Creek canyon east of Cedar City.

POWER EXPANSION—The Telluride Power Co. will spend more than half a million dollars to provide industrial power to the south central Utah area.

TELEPHONE SERVICE TO EXPAND—The Mountain States Telephone & Telegraph Co. will spend $5,000,000 in expanding its Utah services.

NEW PLANT BEING BUILT—Among the industries about to move into new plants are U. S. Gypsum Co. at Sigurd; the Nephi Beverage Co. of Utah, the Structural Steel & Forge Co., the Industrial Steel Co., the Nelson-Ricks Creamery Co., and Fisher Baking Co. in Salt Lake City; Clover Clubs Food Company at Kaysville; the Continental Baking Company at Ogden, and Bennett's Paint & Glass Co. at South Salt Lake.

LEASED FACTORY—Richardson Company will begin the manufacture soon of battery cases in a large, leased factory in Ogden.

CHEMISTRY INDUSTRY EXPANDS—Bonneville, Ltd., will expand its plant near Wendover for producing muriate of potash. . . . The Garfield Chemical & Manufacturing Co. will greatly expand its pro-

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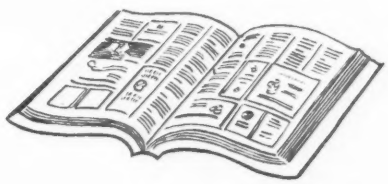

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*Pacific Coast Plant:*
**LA VERNE, CALIF.**
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*OFFICES IN PRINCIPAL CITIES*


## THE WEST ON ITS WAY

duction of sulphuric acid. . . . The Wasatch Chemical Co. is completing its large fertilizer blending plant in Salt Lake City.

SILICA BRICK PLANT — A new firm, Murray Refractories Co. at Devil's Slide, will soon go into production of silica brick.

CEMENT COMPANY EXPANSION—The Ideal Cement Co., Devil's Slide, is completing its $5,000,000 expansion program.

PLANNED CONSTRUCTIONS—Plans for the construction of a large plant in Utah County are being considered by the Pacific States Cast Iron Pipe Co. . . . In Salt Lake City the Western Rock Bit Manufacturing Co. and the Western Steel Co. will begin construction of Salt Lake City plants. . . . The Utah Oil Refining Co. and the Wasatch Oil Refining Co. will expand production facilities this year.

NEW MILLING PLANT—At Nephi, the Juab Valley Feed Company will move into its new milling plant shortly.

PURCHASES DAIRY COMPANY—The Mountain Valley Dairy Company recently purchased the large new dairy products plant at Roosevelt from Calder Brothers.

## WASHINGTON

OFFICES TO MOVE—The offices of Rayonier, Inc., Olympia, will be moved to Hoquiam. The reason for the change is the purchase last fall of control of Polson Timber Co. holdings on the Olympic Peninsula which shifted the firm's activities toward Grays Harbor County.

BUYS CANNERIES—The Nakat Packing Corp. has purchased two Alaska canneries from the P. E. Harris Co. of Seattle. The price was reported in excess of $1,000,000. The Sunny Point cannery at Ketchikan will replace Nakat's Union Bay cannery, 40 miles north of Ketchikan, which was destroyed by fire last fall. The other cannery is at Rose Inlet and will be consolidated with another Nakat cannery in the area.

EXECUTIVE OFFICE TRANSFERRED—The Simpson Logging Co. have transferred their executive office from Shelton to Seattle. The new office will be located in the White-Henry-Stuart building. Division management of Shelton and McCleary plants operated by Simpson will continue to occupy offices in Shelton.


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**The Only Manufacturer of Phosphates and Phosphoric Acid In The Entire West**

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*( Trisodium Phosphate-Crystal )*

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**BELT LACING and FASTENERS** for transmission and conveyor belts

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**ALLIGATOR**
Trade Mark Reg. U. S. Pat. Office
**STEEL BELT LACING**

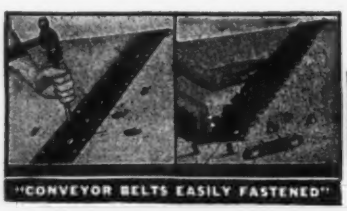
World famed in general service for strength and long life. A flexible steel-hinged joint, smooth on both sides. 12 sizes. Made in steel, "Monel Metal" and non-magnetic alloys. Long lengths supplied if needed. Bulletin A-60 gives complete details.

**FLEXCO HD**
**BELT FASTENERS AND RIP PLATES**

For conveyor and elevator belts of all thicknesses, makes a tight butt joint of great strength and durability. Compresses belt ends between toothed cupped plates. Templates and FLEXCO Clips speed application. 6 sizes. Made in steel, "Monel Metal", non-magnetic and abrasion resisting alloys.

By using Flexco HD Rip Plates, damaged conveyor belting can be returned to satisfactory service. The extra length gives a long grip on edges of rip or patch. Flexco Tools and Rip Plate Tool are used. For complete information ask for Bulletin F-100.

*Sold by supply houses everywhere*


"CONVEYOR BELTS EASILY FASTENED"

**FLEXIBLE STEEL LACING CO.**
4642 Lexington St.
Chicago 44, Ill.

MAGNESIUM PLANT IS LEASED—Portions of a surplus government magnesium plant at Spokane have been leased to the Chromium Mining and Smelting Company of Chicago and Pend Oreille Mining Company of Spokane, for five years. The cost to the government of these portions of the plant was $10,766,927. The lessees have indicated to the War Assets Administration that they will use the plant for experimental purposes in the production of ferrosilicon, ferro-alloys and metallic zinc, and will employ a substantial number of persons.

FACTORY BRANCH OPENED — Preservative Paint Company has opened a Tacoma factory branch at 746 Broadway. William J. Green is manager.

SEATTLE CITY LIGHT—More than $2,500,000 will be spent on a two-year construction program of new substations and modernization of existing substations by the Seattle city council's utilities and finance committees.

GRAPE JUICE FIRM WILL BUILD—Welch Grape Juice Co. will begin construction on a $1,000,000 plant to be located three miles north of Wenatchee. Grapes, berries and soft fruits will be processed.

MARINE SUPPLY FIRM SOLD—Three Seattle men—M. G. Anderson, E. D. Shaw, and M. A. McQuarrie—have purchased Tacoma Marine Supply Inc. for $250,000. Former owners were Arne Strom, Lewis Boen, and Reuben Carlson of Tacoma.

ROCKWOOL PLANT TO GO INTO PRODUCTION — Carney-Pacific Rockwool Company's new plant at Longview is expected to go into production by late spring. The plant will produce Carney Golden Fleece batts for insulation of new buildings and Carney Silver Fleece for modernizing.

## WYOMING

POWER PLANT IMPROVEMENT—A half-million-dollar improvement program by the Montana-Dakota Utilities Company has been completed at the Acme steam-generating power plant, Sheridan. The project included the installation of new high pressure steam boiler and turbo-generator.


To insure future profits for your Company you must keep posted on market developments today.

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Write in for your free copy of our new Questions and Answer Booklet

Eight pages full of facts on our market, western industrial prospects and how you can reach them. Presented in the form recommended by NIAA.

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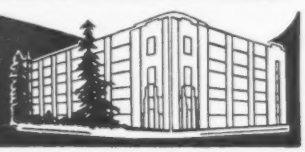

# WESTERN TRADE WINDS

## NEWS ABOUT THOSE WHO DISTRIBUTE AND SELL INDUSTRIAL EQUIPMENT AND MATERIALS

W. Heath Talmadge

**W. Heath Talmadge,** sales and general manager of Pacific Northwest steel companies, has been appointed general manager of the Economy Steel Co., Los Angeles.

**Sidney E. Clark** has been appointed Los Angeles industrial sales representative of Hart & Burns, Inc., paint-making firm.

**H. M. Blinn,** formerly district sales manager of Continental Can Co. at Cincinnati, will take over **P. E. Fagan's** San Francisco district.

**Jerry Long** has been named sales representative of Holly Sugar Corp. for Northern California, with headquarters in San Francisco.

Coast Line Button Corporation have added **Al Miller** to their staff of salesmen. As sales manager, he will handle all of the sales for the West Coast area.

Automatic Steam Products Corp., New York, has opened a West Coast sales and service agency at 618 Mission Street, San Francisco. **Martin Undert** is the manager.

**George Strahan,** formerly associated with the International Nickel Company, New York, has joined Westlectric Castings, Inc., Los Angeles, as sales manager.

**Western Equipment Company's** new plant in Boise, Idaho, will be headquarters for distribution of Thor mining and contractors' tools in Southern Idaho and Eastern Washington.

**Clarence Coleman** has been promoted by Kelite Products, Inc., Los Angeles, to regional managership of its Arizona-Nevada district, with headquarters in Phoenix, Ariz.

**Baxter Pearson,** Los Angeles, has been appointed sales representative for chemicals and plastics of Monsanto Chemical Co., Portland office; **Webb Hayes,** Oregon, sales representative for coatings and adhesives.

Joseph T. Ryerson & Son, Inc., have appointed **J. L. McDermott** as Western sales manager of the Glyco-Ryertex division; Mr. McDermott's headquarters are at the company's Chicago plant. His sales territory extends west from Pittsburgh to the Pacific Coast.

**Swan O. Kjos** will represent Ammco Tools, Inc., in the Northwestern states with headquarters in Seattle.

**District Steel & Equipment Co.,** 4356 District Blvd., Los Angeles, have been appointed exclusive California distributor for Champion forgings, Champion Forge Co., Cleveland.

**John Rogers,** Pacific Coast manager of Cooper-Bessemer Corp., Mount Vernon, Ohio, has transferred his headquarters to San Francisco. . . . **Phil Mettling,** manager of the Los Angeles office, will be responsible for a sales territory consisting of southern California, Arizona, Utah, and southern Nevada. . . . **John McKissick** transfers to the Seattle office, his territory to include Wyoming, Montana, and the provinces of Alberta and Saskatchewan. . . . **James Combs** comes to San Francisco from Mount Vernon as a salesman in northern California.

**Henry J. Wickert** has been appointed manager of equipment sales of the George E. Swett & Co., engineers, San Francisco. He takes over the duties of **Henry Craig** who has resigned. **Frank Sloman** has been promoted to office salesman of the refrigeration department.

**Northwest Truckstell Sales, Inc.,** Portland, are the new distributors of the Anthony line of hydraulic hoists, dump bodies and lift gates.

**Alsco Irrigation, Inc.,** have transferred their plant from San Francisco to Richmond, Calif.; they will continue as Northern California and Nevada distributors for Reynolds aluminum tubing, Buckner sprinklers and Stout fittings and couplers.

**Mailler Searles, Inc.,** San Francisco, have opened a southern California office at 805 North Brand Blvd., Glendale 3.

Frank B. Stewart

**Frank B. Stewart** has been appointed assistant manager of San Francisco district, United States Steel Supply Co.

**F. H. Moline** has been appointed special sales representative and **H. H. Lysons** sales manager of the tractor equipment division of Pacific Car & Foundry Co., Renton, Washington.

**Arthur S. Boehm,** former sales engineer at Pittsburgh for Black & Decker Manufacturing Co., Towson, Md., has been promoted to branch manager in charge of the San Francisco branch, succeeding **A. W. Helbush,** resigned. . . . **R. E. Stone** of New York service to sales in Los Angeles territory.


**For the BEST in LIFT TRUCKS**
**Demand RED ARROW By LIFT TRUCKS, INC.**

Moving S & W FINE FOODS With RED ARROW LIFT TRUCKS

**IMMEDIATE SERVICE AND DELIVERY**

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**IRA G. PERIN CO.**
Material Handling Equipment

**ESTABLISHED IN 1920**
**575 Howard Street • San Francisco, 5 • Phone GArfield 1-1827**

One of the most important factors in the selling of toys is the assurance that shipments are delivered in perfect condition. The young lady is using a Signode K Stretcher to tension ⅝" x .015 Signode steel strapping fed from a model 8 reel. NOTE: Three packages make up a shipping *unit*—thus saving on handling and transportation charges.

# He's proved its worth in shipping rooms— EVERYWHERE... SIGNODE'S SIX-POINT SYSTEM!

When cost sheets show a steady rise in packaging and shipping costs—attributable to poor protective methods—it's time to ask a SIGNODE packaging and shipping engineer for the facts about SIGNODE'S Six-Point System of Planned Protection!

This system has proved itself practical in shipping rooms all over the world. It stops losses . . . stops damage . . . stops pilferage. And it is now in use by more than 700 *different* industries.

Trained SIGNODE engineers, veterans of thousands of successful applications of SIGNODE'S Six-Point System, are ready to help you find a satisfactory and economical way to cut your packaging and shipping costs. Write, phone or wire them today. No obligation to you whatever!

**HERE'S SIGNODE'S SIX-POINT SYSTEM!**

1. On-the-job survey of your shipping requirements
2. Test-proved recommendation of right strapping
3. Test-proved recommendation of proper strapping tools
4. Recommendation of the right seal
5. Fast tool replacement and repair service
6. Supplementary bulletin service to keep you abreast of developments in better shipping and packing methods.

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# The Industrial Bookshelf

***Current literature surveyed . . . a service for all levels of Western management . . .***

## Records Management And Filing Operations

By Margaret K. Odell and Earl P. Strong. McGraw-Hill, 1947, $4.00.

If you've been looking for a really thorough and practical treatment of the oft-neglected subject of records and filing, this book should be the answer to your prayers. This book is undoubtedly one of the most comprehensive ever written on the subject and brings us right up to date on how a records department should operate. Generously illustrated with photographs and diagrams, it leaves very little to the imagination concerning storage, transfer, and disposition of all types of company records.

Management is largely to blame for its failure to cope with the records problem and for its inability to find what it wants when needed. Too little importance has been placed upon the need for a centralized filing department; often the responsibility for maintaining records is left to "just anybody," who more often than not is ill-trained for his responsibility.

This book, besides being a valuable assist to management in setting policy for records control, should prove excellent as a manual for the chief file clerk, the office manager, or the general stenographer who needs a quick reference on practically any filing operation.

Miss Odell and Dr. Strong draw heavily upon their wide experience in education and business (Remington Rand, Inc.) to bring at last a really workable guide to a frequently perplexing problem.

Reviewed by:
ROY W. POE
*Instructor in Office Management*
*Golden Gate College*
*San Francisco, California.*

## Improving Supervision

By Frank and Robert W. Cushman; John Wiley and Sons, Inc., New York, 1947, $2.50.

This book contains a multitude of ideas which supervisors can apply to their jobs. As the authors point out in their preface, the book can be used to especial advantage in discussion groups or as reading material in a formal program of supervisor conferences. In companies where no training programs have been established, the book can be profitably read and studied by individual supervisors.

The first part of the book considers briefly the broad problem of improving supervision, including a survey of line and staff relationships, the supervisor's place in management and the supervisor's job. The bulk of the book analyzes the supervisor's duties in detail, taking up in turn the chief responsibilities of the supervisor which the authors divide into seven groups: (1) stock, (2) tools and equipment, (3) operations and processes, (4) the working force, (5) information, (6) instruction and training and (7) cooperation in management.

Drawing upon their long experience in the training field, the authors approach the problem of management supervision realistically, basing their discussion on principles and practices which have been tested and found useful in a large number of diverse organizations. Their style is clear and simple, their theories illustrated by practical examples and brief case histories.

The brevity of the book precludes detailed treatment of some of the important aspects of supervision and, in attempting to write a book for all supervisors from top management down, the authors have sometimes been forced to over-generalize.

Yet, in making the tenets of sound personnel administration available to supervisors in a brief and easily understood form, "Improving Supervision" is a useful addition to any management library and a sound basic handbook for supervisors. It should help supervisors to realize the importance of human relations in their work and should point up the obvious truth, too often forgotten because it is so obvious, that good management is good supervision.

Reviewed by:
RUSSELL T. SHARPE
*Instructor in Personnel Administration*
*Golden Gate College.*

## Management in Marketing

Edited by Samuel B. Stocking, Jr., University of Toronto Press, Toronto, Canada. 1947. Price $2.50.

The volume presents contributions of nine widely recognized teachers and practitioners of the United States and Canada on various facets of Market Management, emphasizing not only the need of a more cooperative understanding between the business fraternity and the university but the need of stressing the growing importance of management in marketing.

Each chapter is a review of a specific market management problem presented with a brevity of clear, concise understanding, and dealing only with the most important issues of the subjects discussed. The editor says "the sales manager must have something more than enthusiasm on which to base the estimates he gives to Production. Sales and advertising managers have not developed the management point of view. Their concern has been and continues to be much more with sales or the advertising part of their jobs than with the management aspect."

Emphasis is placed upon the responsibility of management to create new markets and uncover new wants for a production machine capable of turning out $200 billion of goods and services in the United States and $15 billion in Canada. To keep this great production machine profitably occupied, workers satisfied, investors contented and our economy stable, management has a trust now as never before. "Successful management requires changes and adjustments to be made long before being forced upon the enterprise by the imminence of bankruptcy."

A forecast of future market requirements see the urgent need for the reduction of distribution costs with management entrusted with the responsibility of sharing distribution cost experience with others for the benefit of the entire business community. This is a departure from past experience as "progress toward lower distribution costs has been retarded by corporate secrecy."

Reviewed by:
MARK H. GREENE
*Instructor in Marketing and Sales Management*
*Golden Gate College*

## Volume of Output Input Control Speeds

*(Continued from page 76)*

emergency is a nuisance and means more trouble, trouble that should be avoided as the plague.

During the war the procurement agencies had a tendency to specify something better than they really needed and then to allow deviations when emergencies in manpower, equipment or raw materials arose. Production workers therefore got used to the idea that specifications did not always mean what they said, that it was better to make a thing not quite right than not to make it at all.

But the average peace-time customer's idea is to ask for what he wants, and then he expects to get it. He is particularly responsive to appearance as well as inherent functional quality. Civilian production may therefore call for tighter control of quality than even war production did, because in the era just ahead of us, specifications are apt to mean what they say, with no deviations allowed.

With the principle of "input equals outgo" established, only a minimum amount of rejectable work can be permitted, or else the factory will get behind in deliveries. Control of quality therefore becomes not just an inspection, but even more an operating problem. It becomes an urgent and serious matter, and it is not long before factory people become more quality conscious, not in the sense that they were doing poor work in the past, but in the sense that standards of workmanship are becoming more stabilized and objective, and workmanship is expected to come up to high standards.

When input control insists that "the customer is the boss," it feeds that idea to all the other controls in the factory. Stemming as it does from sales requirements, it can truly be called "financial control of production."

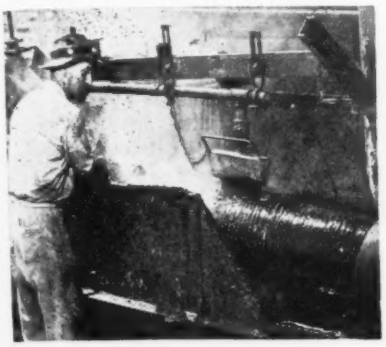
# NEW METHODS, MATERIALS, EQUIPMENT

## That Will Help to Cut Your Production Costs

734

### Protective Coating Increases Pipe Life

Duratex, a protective coating for pipes, has exceptional resistance to electrolysis and corrosion as well as to shock impact.



This material withstands severe earth shock or movement, and because of its stability earth pressures will not cause it to "slump" or "creep."

It is non-toxic. It is easy to apply and will not settle out or "coke-up" after repeated reheating or re-tempering. Alkalis and soil acids have no appreciable effect on Duratex. National Petroleum Sales, Inc., Los Angeles, Calif.

735

### G. E. to Market Molding Powders

The General Electric Chemical Department, Pittsfield, Mass., has designed a complete line of phenolic molding powders, including general-purpose, high-heat-resistant plastic materials. These powders are available in standard colors and mottles, and are uniform. They provide finishes and high glosses and come in a flow range of soft, medium-soft, medium-hard, and hard. Applications vary from distributor caps and switch bases to radio cabinets and cooker handles.

736

### Earth Mover Becomes All-purpose Power Shovel

A reverse fixture for the tractor-mounted Stockland Hydro-scoop converts this hydraulically-operated earth mover into an all-purpose power shovel for handling bulk materials in industry. It loads in reverse, and handles all loose materials—coal, sawdust, refuse, sand, etc. It backs in close to buildings, piles, banks or drop-offs. It reaches into tight and difficult spots, trims excavations, backfills basements. It takes a bite 24 in. wide and 1 in. to 12 in. deep; its capacity is up to 10 cu. ft. Stockland Road Machinery Company, Minneapolis 6, Minn.

737

### Shears to Cut Sheet Metal Stock

A new series of shears for cutting metal sheet prior to application of porcelain enamel has been designed by the Niagara & Tool Works, Buffalo, N. Y. Because of the low slope of the crosshead, the rigidity of the box section bed and crosshead and the individual spring back-up of each hold-down foot, straight cuts with minimum deformation of the material may be made.

The shears are arranged with a completely enclosed underbed drive.

738

### New Series Of Dummy Antennas

Composed of wire-wound, vitreous-enameled resistors, two new series of dummy antennas, Types D-101 and D-251, put out by the Ohmite Manufacturing Co., Chicago, replaces the former glass-enclosed units. Their advantage is greater ruggedness and durability plus high wattage ratings.

The new units consist of a number of special noninductively wound resistors connected in parallel and mounted inside a black wrinkle-finished perforated steel cage. To make electrical connections, two types of terminations are provided, depending upon the intended use.

739

### Something New In Skylight Glazing

Improved facilities for volume production of high tensile aluminum alloys make possible the marketing of an extruded aluminum roof glazing construction known as Aluminex.

As it is used in industrial roof and skylight glazing, the glass is fitted to Aluminex units that are as low priced as wood or galvanized iron. The Aluminex bars are applied so as to provide cushioned support to absorb shocks and vibration, compensation for expansion or contraction and yet retaining the glass firmly in a weathertight manner without the use of putty, storm clips, pads or bolts.

This product is produced and distributed by J. Royden Estey & Sons, Los Angeles 32, Calif.

740

### Low-Cost Wire Rope Hoist

The Yale & Towne Manufacturing Company, Philadelphia, announce a new line of low-cost, low-capacity, wire rope hoists known as "Load King." The frame of the

*(Continued on page 94)*

*Yessir!* I'm Interested in Anything New That Will Help Me Do a BETTER JOB.

WESTERN INDUSTRY
503 Market Street
San Francisco

Please send me information on the following items:.....

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*Name*.....*Title*.....

*Company*.....

*Address*.....

(Continued from page 93)

portable hoist is a heavy, one-piece, ribbed-steel casting, constructed for use with lug, plain trolley, motor trolley, or winch-type mounting.

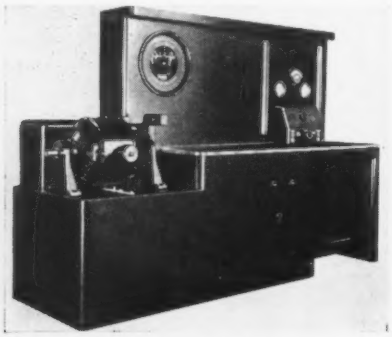
It is equipped with a large-diameter drum with machine-cut grooves for guiding the cable as it winds. The drum has sufficient capacity to provide for full standard lift without overlapping of cable.

It is available in ¼, ½, and one-ton capacities.

741

### Transmission and Absorption Dynamometer

Planned for the testing of gasoline engines, electric motors, air compressors, fluid motors, fuel pumps, and gear pumps, the EMDCO Model E dynamometer is a self-contained unit. The motor generator set is mounted and wired in the base, eliminating installation costs.



One control is used for all tests; no switching is necessary to go from motoring to absorption. Torque is read clockwise on scale—and directly in foot pounds, making conversion unnecessary. In length, the unit is 9 ft.; height is 72 in., and depth is 3 ft. It is manufactured by the Electro Mechanical Devices Co., Detroit 1, Mich.

742

### Plastic Expanding Screw Anchors

Screws may be mounted securely into any material with the use of Holub Sand Scott plastic expanding screw anchors, a complete assortment kit being introduced by Holub Industries, Inc., Sycamore, Ill.

Overlapping internal center slits give the concertina expansion indispensable in screw anchors, and they can be cut to any length required.

The kits are available in two sizes, 250 or 325 assorted anchors for wood screws No.'s 5 through 20 and ¼ in. and 5/16 in. lag screws.

743

### Pumps Feature Faster Priming

The Gorman-Rupp line of centrifugal, self-priming pumps has incorporated a new priming principle in its Midget, Hawk and Eagle lightweight pumps.

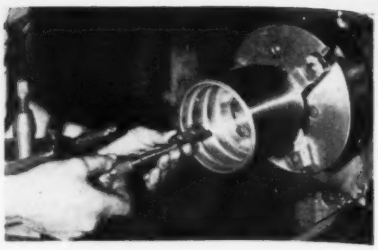
The advantages are faster automatic priming, priming at higher suction lifts, higher pressures and capacities.

Classified as general utility pumps, they are applicable wherever lightweight, easily transportable, and powerful, trouble-free pumps are needed. The Gorman-Rupp Co., Mansfield, Ohio.

744

### Micrometer Designed For Inside Work

Small enough to reach into a hole or opening down to ½ in., the "Model L" Longitudinal Duplex Micrometer is designed to take both inside and outside



measurements of grooves and flanges on the inside of a bore. Measurements are readable while the instrument is held in place.

Special sizes are available from the manufacturer — Richards Machine Tool Co., Glendale 5, Calif.

745

### Stop Watches With Coil-spring Mechanism

The non-breakable, patented, coil-spring mechanism of the Minerva Stop Watch practically assures a stop watch free of any breakage or wearing out.

Of imported Swiss make, these watches are available in various types: 1/5th Second Timers, 1/10th Second Timers, 1/100th Second Timers, Decimal Timers, Pocket Chronographs and Wrist Chronographs used by time study engineers and methodsmen. The Herman H. Sticht Company, Inc., New York 7, N. Y.

746

### Drill Jig For Versatility

Equipped to handle a variety of work stock diameters and hole sizes, the Kam-Grip "750" drill jig is of value in the tool room, experimental department, or on the production line. Cam action is employed to actuate anvil, up and down, to and from locking position.

Overall movement is less than ⅛ in., but amply sufficient for speed and ease in positioning part, loading and unloading. It is adaptable for both automatic or manual operation.

It is furnished complete with two bushing plates, two double-end anvils, and lock-release rod. Manufacturer's Engineering Service, Toledo 4, Ohio.

747

### Cross Belt Magnetic Separator

For concentration and purification of magnetic and non-magnetic materials, the Cross Belt Magnetic Separator (Type E) separates magnetically ilmenite, monazite, chromite, garnet, epidote, wolframite and phrrhotite, among other materials.

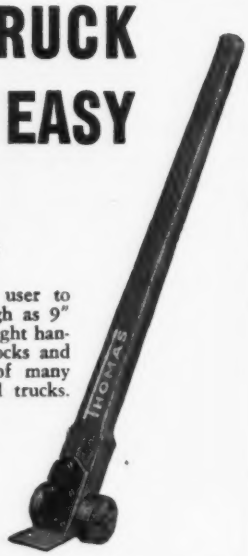
The separator is available with any number of cross belts, separation made possible with varying degrees of magnetic susceptibilities, with the use of extremely high intensity magnetic pole, hand wheel adjustment of air gap to increase or decrease the concentration of flux lines at pole nose, and variable speed drive on main conveyor belt. Dings Magnetic Separator Co., Milwaukee, Wis.


THOMAS PRY TRUCK
MOVES BIG LOADS EASY

*Pry it up on the Crow Bar Nose—*
*Roll it away on the Rugged Wheels!*

- Tremendous leverage
- Lifts loads as high as 9"
- Capacity up to 5000 lbs.
- Made in 3 sizes
- Thousands in use
- Easy to handle

Loads of freight too big or too heavy for regular 2-wheel trucks can be handled easily with Thomas Pry Trucks, particularly when used in pairs. Sharp steel nose slides under load. Tremendous leverage enables user to easily raise load as high as 9" from floor. Used by freight handlers on RR, trucks, docks and in mfg. plants. One of many Thomas 2- and 4-wheel trucks.

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# MECHANICAL KINKS

By W. F. SCHAPHORST, M.E.
Former Engineering Instructor
New Mexico State College

### Boiler Maintenance Pays Dividends

An excellent way in which to check up on boiler maintenance and to assure proper operation is to watch the temperature of the chimney gases. Keep the temperature of the chimney gases as low as practicable. When you do that, you can be reasonably sure that the valuable heat is being utilized and is not escaping.

Let us say, for example, that with poor maintenance you find the temperature of your chimney gas to be 750 deg. F. You then "tighten the belt of the boiler," so to speak, by cleaning off the soot, removing the scale, and stopping baffle leaks, and as a result you find that with good maintenance the temperature of the chimney gases drops to 500 deg. F. The reduction in temperature is therefore 250 degrees because 750—500 equals 250.

Now the question is: How much fuel is saved? You will find that out eventually, of course, in the reduction of your fuel bills, but this is the way to figure it: If there are 19 pounds of gas per pound of fuel burned (which is generally the correct amount for coal) and if your fuel contains 14,000 Btu per pound, you multiply the 19 by the reduction in temperature 250 and get 4750. Then multiply that by 24 and you get 114,000. Then divide that by the heat value of the fuel and we get 8.13 which is the per cent of fuel saved. Perhaps you don't know all of the above factors. If not, there is a "rough" method, namely: divide the reduction in temperature by 30. Thus dividing the above 250 degrees by 30 we get 8.33 per cent saving which is very close to the more accurate 8.13 per cent computed above.

### How to Control 8-Inch Steam Valve

An inquirer wants to control an eight-inch steam valve. When the water in the heater reaches 185 deg. F. he wants the steam valve to close, and to open when below that temperature. "What is the best way to do it?" he asks.

Perhaps the best way, in this writer's opinion, is to use a "train" of devices, as follows: Insert a regulator bulb in the heater tank. This bulb transmits a slight force to an intermediate regulating device or "trigger" which releases water pressure from the city main or elsewhere which in turn through a piston transmits force to a cable or rod to operate the eight-inch valve mentioned. To do this it may be necessary to install a so-called "lever operated control valve" instead of the one now in service because ordinary globe or gate

*(Continued on page 96)*

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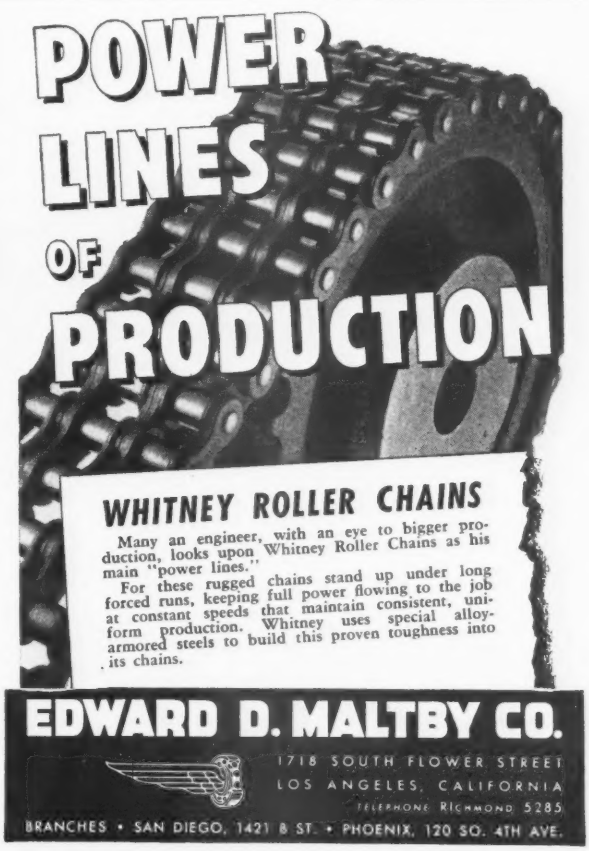
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(Continued from page 95)
valves are less easily controlled automatically. Lever operated control valves work automatically either way—while closing the valve and while opening it.

Arrangements of the above type usually operate satisfactorily. Automatic temperature regulation within close limits can be obtained. In a similar manner devices of this kind can be made to control dampers, water valves, and even large electrical switches and huge doors.

### It Was a Noisy Centrifugal Pump

In the writer's city there was a noisy centrifugal pump which operated with a suction lift. The engineer asked whether it would be all right to admit air into the suction.

Air admitted into a suction line sometimes does eliminate noise, but the writer does not recommend that procedure. The noise is sometimes due to the fact that the suction lift is excessive, causing what is known as "cavitation" in the impeller. Air in the suction is generally *bad* because it reduces pump efficiency and it is also likely to promote corrosion. In other words, admission of air into the suction is a makeshift method. The preferable way is to determine the cause of the noises and then eliminate the cause. If the noise is due to excessive suction lift the pump can probably be lowered sufficiently so that the lift will be of correct height. Do the bearings rattle? If so, repair the bearings. There always is a *best* way to handle a repair job.

### Why the "Geyser Action" in the Steam?

MANY operators of steam boilers are sometimes troubled with water in the steam. Slugs of water are carried along with the steam, especially after a steam valve has been suddenly opened. The writer has been asked a number of times to explain why this "geyser action" takes place.

Suppose the steam valve is closed. No steam is being used and the pressure in the boiler is, say, 200 pounds. There is a fire beneath the boiler and steam is being generated. That being the case, it is logical that throughout the entire body of water in the boiler we have small steam bubbles. The size of these bubbles is dependent upon the pressure in the boiler and the rate of steam generation .

As soon as the valve is opened, there always is a reduction of pressure within the boiler. Therefore the pressure suddenly becomes less than 200 pounds. Probably it is 195 pounds or even 199 pounds. Whatever it is, it is sure to be less than 200 pounds.

That being the case, the bubbles are certain to be larger than the bubbles when the valve is closed. The enlarged bubbles naturally increase the volume of water in the boiler. That is, they raise the water level. This is a well-known fact which has been proved many times.

At the same time, with reduction in pressure the water boils more violently. There also is a rush of steam out through the opening. All of these factors contribute toward "sucking" the water out, and that creates the "geyser effect." The only reason why the geyser action occurs directly beneath the opening is that the flow of steam must be through the valve itself, and consequently that's where the geyser action exists. The great velocity of steam in the neighborhood of the exit opening pulls the boiling water along with the steam in the form of slugs.

There are four ways in which to avoid or eliminate slugs in steam: 1) by maintaining a low water level; 2) by making an outlet opening so large that the exit velocity will not cause geyser action; 3) by installing a separator which will remove the water from the steam; and 4) by passing the steam through a superheater. A superheater will not only convert the water slugs into steam but it will also give the steam a higher temperature than under natural conditions.


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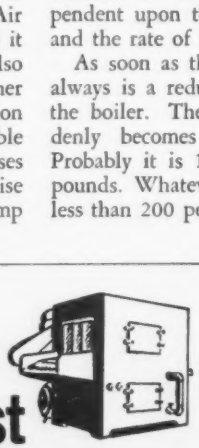

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# HELPFUL LITERATURE

## For the plant operator who wants to keep informed

2328

**Electrical Connecting Devices**—The Howard B. Jones catalog 16 covers electrical connecting devices with specifications, illustrations and suggestions for inspection and installation. Diagrams and cutaway photographs with concise tables aid the user of these devices in ordering his equipment. *Howard B. Jones Division, Cinch Manufacturing Corp., Chicago 18, Ill.*

2329

**Insulating Fire Bricks**—Descriptions of the various types of Armstrong's Insulating Firebrick, the physical properties of the brick, charts of heat loss and storage at various furnace temperatures, and a guide to application of the brick, are contained in two new booklets entitled "Armstrong's Insulating Fire Brick and Refractory Cement" and "Engineering Problems That Have Been Solved With Armstrong's Insulating Firebrick." Also included are descriptions of Armstrong's Refractory Cements and special shapes of Insulating Firebrick. *Armstrong Cork Company, Lancaster, Pr.*

2330

**Die-Less Duplicating**—A new edition of the 40-page DI-ACRO catalog contains illustrations and specifications of Di-Acro precision machines produced by *O'Neil-Irwin Manufacturing Co., Lake City, Minn.* These machines are available in six different types and a total of 18 different sizes. The Di-Acro System of die-less duplicating is the method of producing precision parts without the delay and expense of making dies.

2331

**Conveyor System**—A mile-long system which handles a production product from beginning to end is featured in the New Conveyor Bulletin No. 847 of *Allied Steel & Conveyors, Inc., Detroit.* Also described is an automatic salvage system which disposes of metal turnings and chips.

2332

**Fire Protection**—"The Exhaust-Water Spray Fire Protective System for Wellways" is the title of a 16-page booklet describing a new method of combatting the spread of fire and fumes through burning buildings. It is published jointly by Otis Elevator Company, Westinghouse Electric Corporation and Grinnell Company, Inc.

2333

**Material Handling Equipment**—A new Syntron catalog has just been released. It contains complete information with specifications and applications of vibratory material handling equipment and power tools. Catalog 481, *Syntron Company, Homer City, Pa.*

2334

**Power Cranes**—A 16-page, illustrated booklet, "Lorains in Industry," emphasizes the mobility of Lorain cranes, a feature which enables them to reach, serve and utilize every foot of storage area to make it available for expanded storage. The illustrations picture the application of both rubber tire and crawler mounted cranes and show the use of 15 typical attachments such as clamshell buckets, dragline buckets, electric magnets, hooks, slings, tongs, and others. "Crane handling" instead of "man-handling" is recommended as a means of conserving manpower and insuring weather-proof, 'round-the-clock efficiency in material handling jobs. *The Thew Shovel Company, Cleveland, Ohio.*

2335

**California Manufacturers** — The California Manufacturers Association's directory of California manufacturers is now off the press. Data on 9,000 concerns are included. It consists of 600 pages of descriptive material. It was designed to serve as a guide for purchasing agents, capital investors, domestic and foreign international trade agents and buyers unfamiliar with the Western market. The Los Angeles office of the Association is at 1151 South Broadway; in San Francisco the address is 220 Montgomery St.

2336

**Use of Rod Mills**—Advantages in using rod mills in certain grinding applications and their construction are explained in a 12-page bulletin released by *Allis-Chalmers, Milwaukee, Wis.* Six types of rod mills and three kinds of rod mill drives are described. Included is a table of rod mill sizes and capacities along with approximate overall dimensions of Texrope-driven and direct-connected rod mills. Bulletin 07B6718.

2337

**Tructractor Catalog**—*The Tructractor Division of the Clark Equipment Company, Battle Creek, Mich.*, presents its full line of machines and special handling attachments in a 40-page catalog. Featured are the Clark "Pul-Pac," which handles unit loads based on sheets of corrugated paper, fiber board or similar material; and the Clark "Hi-Lo-Stack" which combines 130-inch lift, 83-in. overall height and 62-in. "free" lift.

2338

**Metal Working**—"Points to Check in Selecting a Sheet Metal Fabricator Specializing in Aluminum, Magnesium and Stainless Steel" is the title of a 20-page, illustrated booklet published by *Colgate Manufacturing Corp., Amityville, L. I., N. Y.* It gives details of the extensive designing, toolmaking and manufacturing facilities available. The booklet also stresses the importance of a location near New York City, emphasizing the freight savings that accrue to eastern customers and pointing out the advantages of an eastern branch plant to manufacturers located in the West but selling in eastern markets or exporting through eastern ports.

2339

**Steel Analyses Chart**—Brought up to date over a period of seven years, the Corrosion and Heat Resisting Steel Analyses Chart, reissued by *Globe Steel Tubes Co., Milwaukee 4, Wis.*, is a valuable reference because of the large variety of stainless steels produced by the many steel mills. The tabulation shows the chemical analysis of most of the stainless steels produced and usually available.

2340

**Radio Catalog**—More than 10,000 items are included in Allied Radio Corporation's 1948 172-page catalog, covering "Everything in Radio and Electronics." Special emphasis is placed on equipment for industrial maintenance, research and production requirements. There are detailed listings of electronic tubes, test instruments, transformers, resistors, condensers, rheostats, relays, switches, rectifiers, tools, wire and cable, batteries, sockets, generators, power supplies and other types of equipment in the industrial field. *Allied Radio Corp., Chicago 7, Ill.*


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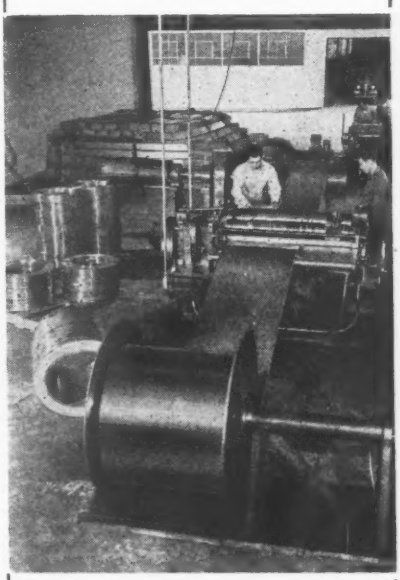

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### Wirebound Box Meet Held in Hollywood

A 23 per cent increase in the number of wirebound boxes and crates for shipping industrial products in 1947, as compared with 1946, was reported at the recent annual meeting of the Wirebound Box Manufacturers Association at the Hollywood Roosevelt Hotel, Hollywood, Calif. The manufacturers made 69,104,974 industrial wirebound crates and boxes last year as compared to 56,172,772 in 1946.

Wirebound container manufacturers reported that wire at present is in satisfactory supply and that lumber, while high-priced, is available in sufficient quantities. They predicted that the use of the containers will expand if basic materials continue to be available.

Many industrialists have reported important savings in shipping room costs, freight charges, and shipping damage as the result of converting to relatively light weight wirebound shipping containers.

A decline in shipments of fresh fruits and vegetables was reflected in a decrease in the number of wirebound containers required for those products.


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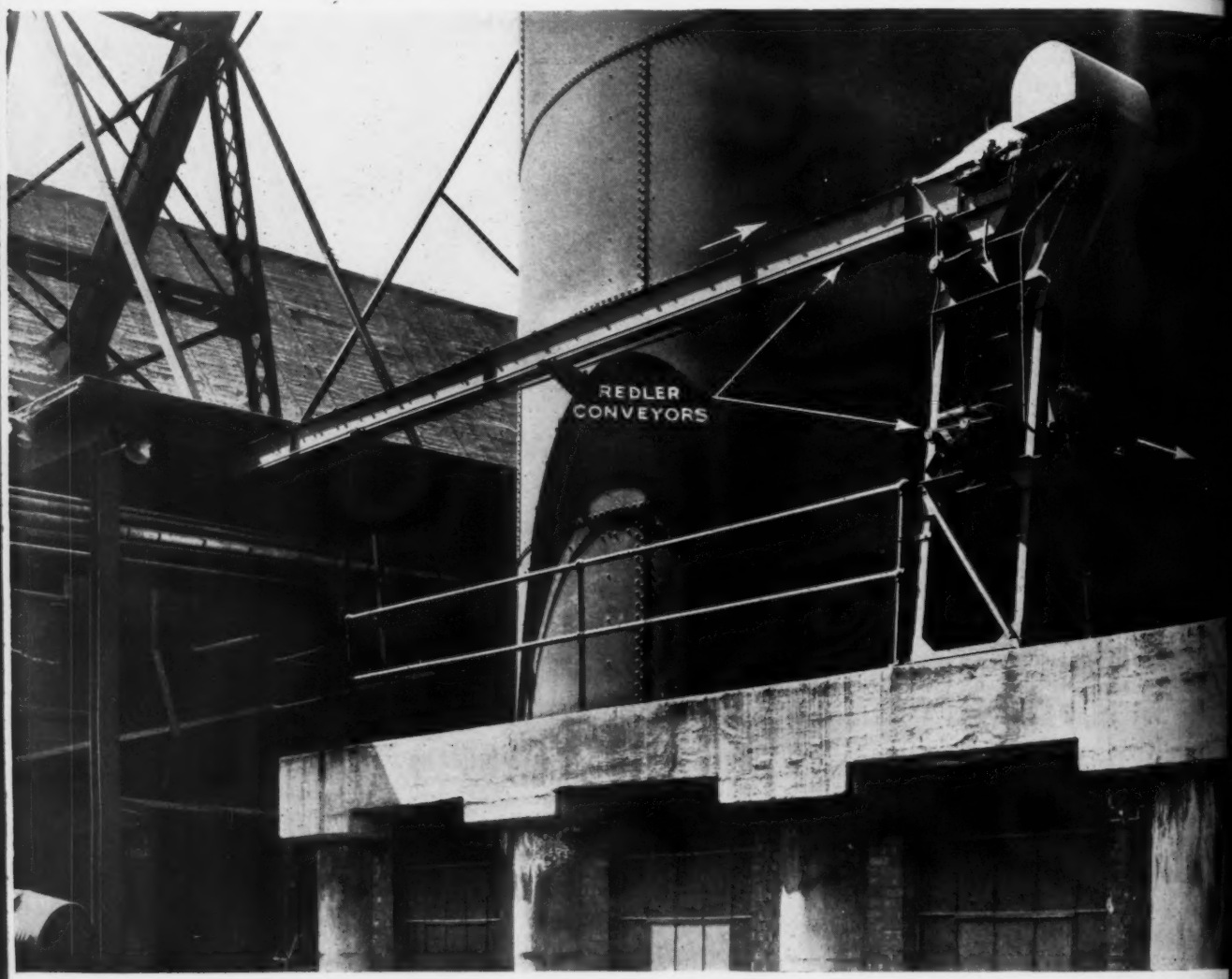


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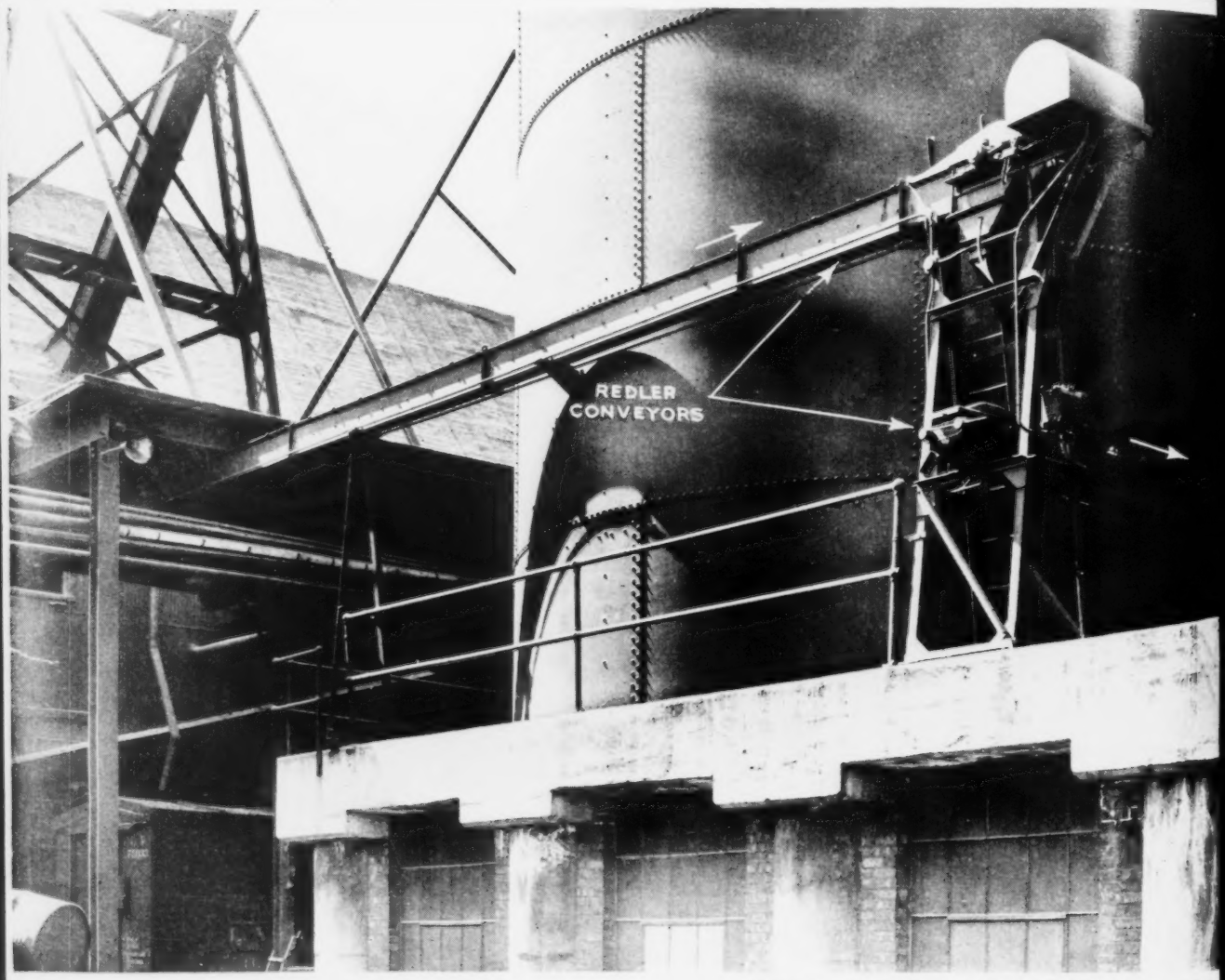


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